

<b>Oggetto:</b>	servizio di consulenza per lo studio sperimentale e computazionale della stabilità a lungo termine e dei meccanismi di degradazione di assemblaggi membrana-elettrodi (MEA) per celle a combustibile a conduzione anionica, per le esigenze del Dipartimento di Scienza dei Materiali
<b>Valore:</b>	€ 190.000,00 (Iva esclusa)
<b>Procedura adottata:</b>	negoziata ai sensi dell'art. 1, c.2, lett. b), della L. 120/20
<b>Determina a contrarre:</b>	Delibera C.d.A. n. 311 del 18/05/2021
<b>Criterio di aggiudicazione:</b>	offerta economicamente più vantaggiosa secondo il criterio della migliore qualità/prezzo ai sensi dell'art. 95, comma 2, del D.lgs. 50/2016
<b>Responsabile del Procedimento:</b>	Dott.ssa Claudia Galtelli – Responsabile del Centro Servizi di Scienze 1 – ex Art. 7, c. 1, D.R. Rep. 650/2018 – Prot. n. 8088/18 del 06/02/2018
<b>Codice Identificativo Gara – CIG</b>	8777734F3B
<b>Codice Unico Progetto – CUP</b>	B44G19000130008
<b>UOR – Unità Operativa Responsabile:</b>	Area Infrastrutture e Approvvigionamenti - Settore Centrale di committenza - Ed. U9 Viale dell'Innovazione, 10 – Milano e-mail: centrale.committenza@unimib.it
<b>Referenti pratica:</b>	<b>Dott. Andrea Ambrosiano - tel. 02.6448.6069</b> Dott. Mattia Muratore - tel. 02.6448.5347

**IL DIRETTORE del DIPARTIMENTO di SCIENZA DEI MATERIALI**  
su proposta del R.U.P. Dott.ssa Claudia Galtelli

**PREMESSO** che questa Università, con Delibera CdA n. 311 del 18/05/2021, ha indetto una procedura negoziata ai sensi dell'art. 1, c. 2, lett. b), della L. 120/20 per l'affidamento del servizio di consulenza per lo studio sperimentale e computazionale della stabilità a lungo termine e dei meccanismi di degradazione di assemblaggi membrana-elettrodi (MEA) per celle a combustibile a conduzione anionica, per le esigenze del Dipartimento di Scienza dei Materiali (CIG: 8777734F3B – CUP: B44G19000130008) - Responsabile Unico del Procedimento: Dott.ssa Claudia Galtelli;

**PREMESSO** che, al fine di individuare operatori economici da invitare alla presente procedura, è stato pubblicato sul sito istituzionale dell'Ateneo l'avviso di indagine di mercato prot. n. 0056807/21 del 30/04/2021;

- VISTO che, nel termine indicato dal citato avviso, previsto per il 15/05/2021, ha manifestato interesse a partecipare il seguente operatore economico:  
- POLITECNICO DI MILANO.
- RICORDATO che in data 08/06/2021 tale operatore è stato invitato a presentare offerta mediante la piattaforma telematica “U-Buy e-procurement Appalti & Affidamenti”;
- RICORDATO che il termine ultimo per la presentazione delle offerte è decorso il giorno 29/06/2021 alle ore 11:00 e che entro detto termine ha presentato offerta il solo Operatore Economico POLITECNICO DI MILANO;
- CONSIDERATO che il criterio di aggiudicazione della gara previsto è quello dell’offerta economicamente più vantaggiosa, ai sensi dell’art. 95 del D.lgs. 50/2016;
- RICORDATO che in data 29/06/2021, alle ore 14:30, si è tenuta in modalità riservata in videoconferenza, come indicato dall’art. 2 delle Linee Guida adottate da questo Ateneo in data 15/10/2020 (prot. n. 73069/20) per la formazione delle commissioni di gara (“*Qualora si tratti di procedura interamente telematica, tutte le sedute di gara possono avvenire in modalità riservata mediante collegamento da remoto*”), l’apertura delle buste contenenti la documentazione amministrativa e tecnica, da parte del R.U.P. Dott.ssa Claudia Galtelli, alla presenza del Dott. Andrea Ambrosiano, in qualità di Ufficiale Rogante e primo testimone, delegato con Decreto Rettorale n. 8178 del 01/04/04 ad assistere a tutte le gare pubbliche, coadiuvato dal Dott. Mattia Muratore, del Settore Centrale di Committenza, in qualità di Segretario verbalizzante e di secondo testimone;
- PRESO ATTO della necessità di procedere, ai sensi dell’art. 77 del D.Lgs. 50/2016, alla nomina della Commissione tecnica giudicatrice;
- RICORDATO che ai sensi di legge, come anche ricordato all’art. 7 delle citate Linee Guida, la nomina della commissione avviene, in un momento successivo alla scadenza del termine di presentazione delle offerte, ad opera del soggetto competente ad effettuare la scelta del soggetto affidatario del contratto, o suo delegato;
- RICORDATO che, ai sensi dell’art. 9 c. 4 Regolamento rep. 650/2018 recante “*regolamento per le acquisizioni di beni e di servizi di importo inferiore alla soglia comunitaria e di lavori di importo inferiore a 1 milione di euro*” è competenza del Dirigente di riferimento o del Responsabile della Struttura provvedere, su proposta del R.U.P., all’aggiudicazione al soggetto affidatario;

**RICORDATO**

che, ai sensi del combinato disposto dell'art. 1 del citato regolamento 650/2018 e dell'art. 3, c. 3, lett. b), del Regolamento per l'Amministrazione e la Contabilità dell'Università degli Studi di Milano Bicocca, adottato con Decreto Rettorale rep. 1235/2017 del 20/03/2017, il Responsabile di Struttura è il Direttore del Dipartimento interessato;

**VISTE**

le Linee Guida di cui sopra all'art. 6: *“La selezione dei componenti della Commissione avviene su proposta del R.U.P. che, seguendo i criteri di cui al precedente Art. 04, indica una rosa di candidati in numero, ove possibile, doppio rispetto al numero totale previsto negli atti di gara per la composizione della Commissione. Nel corso della prima seduta di gara, o in un'apposita seduta successiva, il Seggio di gara provvede ad effettuare il sorteggio di tutti i soggetti selezionati, costituendo una graduatoria da scorrere ai fini della richiesta di disponibilità dei soggetti stessi a ricoprire l'incarico di commissario. Il Presidente della Commissione è individuato, tra i commissari sorteggiati, in base al criterio della maggiore anzianità anagrafica”*;

**PRESO ATTO**

che il RUP – Dott.ssa Claudia Galtelli, tenuto conto di quanto disposto dall'art. 4 delle sopra citate Linee, il quale prevede che la commissione sia composta da un numero dispari di commissari, di norma pari a 3 membri, ha indicato la seguente rosa di candidati interni esperti nello specifico settore cui si riferisce l'appalto:

- Prof.ssa Simona Binetti (Professore ordinario presso il Dipartimento di Scienza dei Materiali);
- Prof. Massimiliano D'Arienzo (Professore associato presso il Dipartimento di Scienza dei Materiali);
- Dott.ssa Barbara Di Credico (Ricercatrice presso il Dipartimento di Scienza dei Materiali);
- Dott.ssa Chiara Ferrara (Ricercatrice presso il Dipartimento di Scienza dei Materiali);
- Prof. Riccardo Ruffo (Professore associato presso il Dipartimento di Scienza dei Materiali);
- Dott. Carlo Santoro (Ricercatore presso il Dipartimento di Scienza dei Materiali).

**PRESO ATTO**

che il 29/06/2021 alle ore 15:00 il Seggio di gara ha provveduto ad effettuare il sorteggio dei soggetti selezionati, mediante la funzione CASUALE.TRA di Microsoft Excel, utilizzando la formula “casuale.tra()”, formando la seguente graduatoria, da scorrere ai fini della richiesta di disponibilità dei soggetti stessi a ricoprire l'incarico di commissario:

1. Dott. Carlo Santoro;
2. Prof.ssa Simona Binetti;

3. Dott.ssa Chiara Ferrara;
4. Prof. Massimiliano D'Arienzo;
5. Prof. Riccardo Ruffo;
6. Dott.ssa Barbara Di Credico.

- PRESO ATTO** che i primi tre soggetti della graduatoria sopra indicata, visto l'operatore economico concorrente, ciascuno per conto proprio hanno dichiarato - consapevoli delle sanzioni penali nel caso di dichiarazioni non veritiere e di formazione o uso di atti falsi, richiamate dall'art. 76 del D.P.R. 28/12/2000 n. 445 - con riferimento a quanto previsto all'art. 77 c. 6 del D.lgs. 50/16 e, in particolare, rispetto agli artt. 35-bis del D.lgs. n. 165/01, 51 c.p.c. e 42 del D.lgs. 50/16 in esso richiamati, che non sussistono cause ostative alla copertura del presente incarico di Presidente/Componente di Commissione di gara;
- PRESO ATTO** che i medesimi hanno dimostrato di possedere specifica competenza nell'ambito dell'oggetto della presente procedura, come emerge dai relativi curricula prodotti, e che risultano quindi idonei a valutare l'offerta tecnica presentata dall'Operatore Economico concorrente;
- CONSIDERATO** che la presente nomina avviene nel pieno rispetto dei principi generali di economicità, efficacia, imparzialità, parità di trattamento, trasparenza, proporzionalità, pubblicità, dettati dall'art. 4 del D.lgs. 50/16 nonché, per quanto consentito dalla reale disponibilità di organico, del principio di rotazione degli incarichi;
- CONSIDERATO** che, trattandosi di soggetti interni, dipendenti dell'Ateneo, la presente nomina non dà diritto alla corresponsione di alcun compenso economico aggiuntivo, essendo attività da ricomprendersi nel novero dell'attività ordinaria assegnata.

**ATTESO CHE**

- il capo Settore Centrale di Committenza Dott. Andrea Ambrosiano attesta la legittimità e la regolarità del presente provvedimento;

**SU PROPOSTA**

- del RUP, Dott.ssa Claudia Galtelli – Responsabile del Centro Servizi di Scienze 1;

**DECRETA**

di nominare quali componenti della Commissione di gara, per le motivazioni indicate nelle premesse del presente atto e che qui si intendono integralmente riportate:

<b>- Prof.ssa Simona Binetti</b>	Professore ordinario presso il Dipartimento di Scienza dei Materiali (Presidente);
<b>- Dott. Carlo Santoro</b>	Ricercatore presso il Dipartimento di Scienza dei Materiali (Componente);
<b>- Dott.ssa Chiara Ferrara</b>	Ricercatrice presso il Dipartimento di Scienza dei Materiali (Componente).

VISTO

Dott.ssa Claudia Galtelli  
Responsabile Unico del Procedimento  
[f.to digitalmente *ex art. 24, D.Lgs. 82/05*]

Il Capo Settore Centrale di Committenza  
Dott. Andrea Ambrosiano  
[f.to digitalmente *ex art. 24, D.Lgs. 82/05*]

Il Direttore di Dipartimento  
Prof. Alessandro Abbotto  
[f.to digitalmente *ex art. 24 D.lgs. 82/05*]

Unità operativa Responsabile: Area Infrastrutture e Approvvigionamenti - Settore Centrale di Committenza – Capo Settore: Dott. Andrea Ambrosiano  
Estensore: Dott. Mattia Muratore



**TIPO CONTRASSEGNO** QR Code

**IMPRONTA DOC** 49B9DA6785A18444C189AD9231C6FBF7CA7074D3F15C624794F255840664DBD0

**Firme digitali presenti nel documento originale**

Firma in formato p7m: ALESSANDRO ABBOTTO

Firma in formato p7m: CLAUDIA GALTELLI

Firma in formato p7m: ANDREA ALFREDO BRUNO AMBROSIANO

**Dati contenuti all'interno del Contrassegno Elettronico**

Protocollo 0088678/21

Data Protocollo 23/07/2021

AOO AMM. CENTRALE

UOR AREA INFRASTRUTTURE E APPROVVIGIONAMENTI

Resp. Procedimento SETTORE CENTRALE DI COMMITTENZA

Repertorio Progressivo 6308/2021

**Credenziali di Accesso per la Verifica del Contrassegno Elettronico**

**URL** <https://webproto.si.unimib.it/portaleglifo>

**IDENTIFICATIVO** 6LA54-52620

**PASSWORD** sDSxk

**DATA SCADENZA** 23-07-2022

## Allegato C

### Dichiarazione di assenza di cause di incompatibilità rispetto alla qualità di Presidente/Componente di Commissione di gara

**Oggetto: procedura negoziata ai sensi dell'art. 1, c.2, lett. b), della L. 120/20 per il servizio di consulenza per lo studio sperimentale e computazionale della stabilità a lungo termine e dei meccanismi di degradazione di assemblaggi membrana-elettrodi (MEA) per celle a combustibile a conduzione anionica, per le esigenze del Dipartimento di Scienza dei Materiali**

**C.I.G.: 8777734F3B**

**C.U.P.: B44G19000130008**

La sottoscritta Prof.ssa Simona Olga Binetti \_\_\_\_\_

preso atto che hanno presentato l'offerta per la partecipazione alla gara in oggetto i seguenti Operatori Economici:

- POLITECNICO DI MILANO, avente Sede Legale in Milano, Piazza Leonardo da Vinci n. 32.

Consapevole della responsabilità e delle conseguenze previste in casi di rilascio di dichiarazioni mendaci, ai sensi e per gli effetti dell'art. 76 del D.P.R. n. 445/2000

DICHIARA

Di confermare il contenuto della dichiarazione di cui all'Allegato A Domanda di iscrizione all'Elenco Commissari, ivi compreso il contenuto del CV ivi prodotto<sup>1</sup>.

DICHIARA

che non sussistono cause di incompatibilità con l'incarico di Presidente/Componente di Commissione, e in particolare:

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<sup>1</sup> In caso di modifiche rispetto alla dichiarazione presentata, si prega di segnalare le stesse in allegato alla presente; si prega altresì di produrre nuovamente il proprio CV aggiornato, qualora diverso rispetto all'ultima versione presentata.

1. di non essere titolare di interessi privati, finanziari e non, che possano porsi in conflitto, anche potenziale, con l'esercizio imparziale delle funzioni affidate;
2. che rispetto alla gara in oggetto non sussistono interessi, finanziari e non, riconducibili al coniuge, ai parenti entro il quarto grado e/o a soggetti conviventi o a organizzazioni di cui il sottoscritto o il coniuge o i parenti entro il quarto grado e/o i conviventi siano amministratori o dirigenti;
3. di non avere in corso, ovvero di non avere svolto nel corso degli ultimi tre anni, incarichi, mandati, compiti, mansioni, servizi ovvero cariche, funzioni, uffici o situazioni assimilabili presso operatori economici che partecipino in veste di concorrenti alla gara in oggetto ovvero presso operatori economici ai primi legati da rapporto di controllo ovvero di collegamento societario;
4. di non essere stato condannato, anche con sentenza non passata in giudicato, per i reati previsti nel capo I del titolo II del libro secondo del codice penale;
5. di non avere riportato condanne penali passate in giudicato per reati che comportino l'interdizione perpetua dai pubblici uffici, ovvero di non essere, al momento attuale, a seguito di condanna penale passata in giudicato, sottoposto all'interdizione temporanea dai pubblici uffici;
6. di non svolgere o aver svolto alcun'altra funzione o incarico tecnico o amministrativo relativamente al contratto del cui affidamento si tratta (art. 77, co. 4, del D.Lgs. 50/2016);
7. di non incorrere in nessuna delle cause di incompatibilità e di astensione di cui ai commi 5 e 6 dell'art.77 del D.Lgs. 50/2016;

#### DICHIARA INOLTRE

1. di aver svolto le seguenti tipologie di impiego/lavoro, sia pubblico che privato, nel corso degli ultimi 5 anni, (*indicare anche il relativo datore di lavoro*):

.....Professore presso Università di Milano - Bicocca

.....

#### DICHIARA ALTRESI'

- in ottemperanza con quanto previsto dalla vigente normativa sulla privacy, con la sottoscrizione del presente modulo, di aver preso visione dell'informativa sul trattamento dei propri dati personali ai sensi del Regolamento (EU) n. 679/2016 (pubblicata alla pagina

UNIVERSITÀ DEGLI STUDI DI MILANO – BICOCCA  
Piazza dell'Ateneo Nuovo, 1 – 20126 Milano  
TEL. +39.2.6448.1 – Casella PEC: [ateneo.bicocca@pec.unimib.it](mailto:ateneo.bicocca@pec.unimib.it)  
C.F. / P. IVA 12621570154

[https://www.unimib.it/sites/default/files/Infrastrutture/Informativa\\_privacy%20UE%20centrale%20com\\_mittenza\\_sito%20%281%29.pdf](https://www.unimib.it/sites/default/files/Infrastrutture/Informativa_privacy%20UE%20centrale%20com_mittenza_sito%20%281%29.pdf) ) autorizzando nel contempo l'Ateneo al trattamento dei propri dati personali nell'ambito degli impieghi leciti previsti, ivi compresa la pubblicazione del proprio *curriculum vitae* sul sito istituzionale dell'Ateneo, ai sensi e per gli effetti dell'art. 29, c. del D.lgs. 50/16, dichiarando altresì che i dati ivi contenuti non sono da considerarsi riservati ai sensi dell'articolo 53 ovvero secretati ai sensi dell'articolo 162 del medesimo D.lgs. 50/16<sup>2</sup>;

- di obbligarsi inoltre a trattare con riservatezza i dati e le informazioni trasmesse o delle quali verrà in possesso durante l'espletamento delle attività, a non divulgarle e a non utilizzarle per scopi diversi da quelli convenuti e strettamente funzionali all'espletamento dell'oggetto di cui al presente incarico.

Milano, 30 giugno 2021

FIRMA

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<sup>2</sup> Art. 29. (Principi in materia di trasparenza)

1. Tutti gli atti delle amministrazioni aggiudicatrici e degli enti aggiudicatori relativi alla programmazione di lavori, opere, servizi e forniture, nonché alle procedure per l'affidamento di appalti pubblici di servizi, forniture, lavori e opere, di concorsi pubblici di progettazione, di concorsi di idee e di concessioni, compresi quelli tra enti nell'ambito del settore pubblico di cui all'articolo 5, **alla composizione della commissione giudicatrice e ai curricula dei suoi componenti**, ove non considerati riservati ai sensi dell'articolo 53 ovvero secretati ai sensi dell'articolo 162, devono essere pubblicati e aggiornati sul profilo del committente, nella sezione "Amministrazione trasparente" con l'applicazione delle disposizioni di cui al decreto legislativo 14 marzo 2013, n. 33.

# CURRICULUM VITÆ DI Simona Olga Binetti

## DATI ANAGRAFICI E POSIZIONE ATTUALE

Nata a [REDACTED] il [REDACTED]

Stato Civile: [REDACTED]

Residente in [REDACTED]

Posizione attuale: Professore di I fascia in Chimica Fisica CHIM02 presso il Dipartimento di Scienza dei Materiali dell'Università di Milano-Bicocca

## FORMAZIONE

- 1995-1998*      **Dottorato di ricerca in Scienze Chimiche**  
Università degli Studi di Milano  
Titolo della tesi “Studio di fenomeni di luminescenza in silicio”  
Relatore Tesi : Prof. R. Destro
- 1991-1993*      **Diploma di Specializzazione in Scienza e Tecnologia dei Materiali**  
Università degli Studi di Milano  
Titolo tesi “Interazione tra ossigeno, carbonio, idrogeno e difetti estesi in silicio policristallino “ relatore Prof. S. Pizzini  
votazione di 70/70 e lode.
- 1986-1991*      **Laurea in Fisica** Novembre 1991  
Università degli Studi di Milano  
Titolo tesi “Studio dei difetti estesi nel silicio policristallino mediante tecnica L.B.I.C “ Relatore Prof. S. Pizzini , votazione di 109/110
- Luglio 1986*      **Maturità Scientifica** Liceo A. Volta di Milano, votazione 58/60

## CARRIERA ACCADEMICA

- Marzo 2021 –oggi*      **Professore Ordinario** – Settore scientifico disciplinare CHIM02, Chimica Fisica Dipartimento di Scienza dei Materiali, Università degli Studi di Milano –Bicocca
- Ottobre 2015–Febbraio 2021*      **Professore associato** – Settore scientifico disciplinare CHIM02, Chimica Fisica Dipartimento di Scienza dei Materiali, Università degli Studi di Milano –Bicocca
- Ottobre 2017 –oggi*      **Presidente del consiglio di coordinamento didattico** dei corsi di laurea in Scienze e Tecnologie Chimiche in carica fino al 30/09/2023
- Febbraio 2020 –oggi*      **Direttore Centro MIBSOLAR** Materiali e dispositivi per energia solare, Università degli Studi di Milano-Bicocca in carica fino al 19/2/2026

2013- 2019

**Vicedirettore Centro MIBSOLAR** Materiali e dispositivi per energia solare, Università degli Studi di Milano-Bicocca

Giu-1999- Sett-2015

**Ricercatore Universitario** Settore scientifico disciplinare CHIM 02, Chimica Fisica, Dipartimento di Scienza dei Materiali, Università degli Studi di Milano-Bicocca

## **INCARICHI ISTITUZIONALI**

**-Presidente del Consiglio di Coordinamento Didattico** di Scienze e Tecnologie chimiche (dal 2017 ad oggi ed in carica fino al 30/9/2023)

**- Direttore scientifico** del centro studi dell'Università di Milano Bicocca denominato CENTRO MILANO-BICOCCA PER LO STUDIO DI MATERIALI, PROCESSI E DISPOSITIVI PER L'ENERGIA SOLARE – MILANO-BICOCCA SOLAR ENERGY RESEARCH CENTER (MIB-SOLAR), dal 20-02-2020 al 19-02-2026

- Componente del **Presidio della Qualità di Ateneo** Ramo didattica dal 5-03-2021 al 30-9-2024

- Componente della commissione Didattica Innovativa della Università di Milano - Bicocca dal 25.05.2020 al 25.05.2021

**-Membro del Collegio di Dottorato in Scienza e Nanotecnologia dei Materiali**, Università di Milano Bicocca (dal 2013 ad oggi).

**-Delegata del Rettore** per rappresentare l'Università di Milano-Bicocca in **EERA (European Energy Research Alliance)** dal 24/4/2015 ad oggi, nella quale l'università di Milano Bicocca è core partner. (Delega valida fino a 31/12/2022)

**-Delegata del Rettore** per rappresentare Università di Milano Bicocca nel Cluster Tecnologico Regionale Lombardo Lombardy Energy Cleantech Cluster **“LE2C”** (in tale cluster è membro del consiglio direttivo, portavoce del cluster dei lavori del comitato di programma energia di Horizon 2020 e rappresentante dello stesso cluster nel **Cluster Nazionale Energia** (da marzo 2015 ad oggi)

**-Componente del Comitato Scientifico: dell'accordo quadro tra RSE SpA - Ricerca sul Sistema Energetico e l'Università degli Studi di Milano** (febbraio 2020 ad oggi)

**-Componente del consiglio scientifico del centro interuniversitario del Politecnico di Milano e dell'Università di Milano-Bicocca L-NESS** (Laboratorio per Nanostrutture Epitassiali su Silicio e per Spintronica), dal 12-12-2016 in carica fino al 23/06/2023 .

-Componente e delegata di Bicocca a partecipare al gruppo lavoro di esperti nazionali della *“La rete Apre verso Horizon Europe” per il Cluster 5 'Climate, Energy and Mobility' di Horizon Europe*

**-Componente del Comitato di Coordinamento di Ateneo - Polo penitenziario universitario** dell'Università di Milano-Bicocca, da aprile 2020 ad oggi

- Ha rappresentato l'Università di Milano Bicocca nel comitato di redazione del **Piano nazionale delle ricerche** (PNR 2021-2027) nel sottogruppo “Clima ed Energia”

-Componente effettivo del **Collegio di disciplina dell'Università di Milano Bicocca** dal 17 giugno 2016 al 1 marzo 2021

**-Componente e Rappresentante della Scuola di Scienze** (ex Facoltà di Scienze MMFFNN) nella **Commissione Orientamento di Ateneo** (da gennaio 2012 ad Ottobre 2017 e da ottobre 2019 ad oggi)

-Presidente della commissione di orientamento della scuola di Scienze (da dicembre 2012- ottobre 2015 )

-Delegata del Rettore a rappresentare l'Università di Milano –Bicocca nella Fondazione CIFE “Centro Internazionale della Fotonica per l'Energia” (dicembre 2015- aprile 2016)

-Componente della Giunta di Dipartimento da ottobre 2012 ad ottobre 2015 e dal 2018 ad oggi

-Ha fatto parte del comitato di redazione e fa parte del comitato di gestione del Progettodi Eccellenza “Energia elettrica e vettori energetici da fonti rinnovabili – FLEXILAB” vinto dal Dipartimento di Scienza dei Materiali nell’ ambito del "Fondo per il finanziamento dei dipartimenti universitari di eccellenza

-Dal 2005 al 2012 è stata delegata del Preside della Facoltà di Scienze Matematiche Fisiche e Naturali per i rapporti con l'Ufficio Scolastico Regionale della Lombardia

-Dal 2001 al 2012 è stata presidente della Commissione Orientamento del Consiglio di Coordinamento Didattico di Scienza dei Materiali

-Dal 2001 al 2013 è stata componente del Collegio dei docenti del Dottorato Europeo in Nanostrutture e Nanotecnologie dell’Università degli Studi di Milano Bicocca

## **ATTIVITA’ DIDATTICA**

Attività Didattica istituzionale presso l’Università di Milano - Bicocca

DAL A.A. 2000-2001 AL 2001-2002

Affidamento gratuito del corso di Laboratorio di chimica dei materiali II (CHIM02), Corso di laurea in Scienza dei Materiali V.O.

A.A. 2002-2003

Affidamento gratuito del corso di Laboratorio di chimica dei materiali II (CHIM02) , Corso di laurea in Scienza dei Materiali V.O

Esercitatore per del corso di laboratorio di chimica fisica, 3CFU, (CHIM02) Laurea triennale in Scienze e Tecnologie Chimiche

DAL A.A. 2003-2004 AL 2005-2006

Affidamento gratuito Laboratorio di chimica dei materiali II 5CFU, (CHIM02) Corso di laurea in Scienza dei Materiali V.O.

Affidamento gratuito Chimica dei materiali I (II mod), 2 CFU, (CHIM02) Corso di laurea triennale in Scienza dei Materiali

Esercitatore per il corso di laboratorio di chimica fisica 3CFU, (CHIM02) Laurea triennale in Scienze e Tecnologie Chimiche

A.A. 2007-2008

Affidamento gratuito del corso di Chimica dei materiali I ( II mod.) 2 CFU (CHIM02); Corso di laurea triennale in Scienza dei Materiali

Affidamento gratuito del corso di Laboratorio di chimica fisica superiore, 4CFU, (CHIM02) Corso di laurea specialistica in Scienze e Tecnologie Chimiche

Affidamento gratuito del corso di Laboratorio di chimica dei materiali II, 5 CFU (CHIM02), Corso di laurea specialistica in Scienza dei Materiali

DAL A.A. 2008-2009 al 2009-2010

Affidamento gratuito del corso di Complementi di chimica fisica 3CFU (CHIM02) Corso di laurea triennale in Scienza dei Materiali

Affidamento gratuito del corso di Chimica dei Materiali I (II mod.) 2CFU (CHIM02) Corso di laurea triennale in Scienza dei Materiali

A.A. 2010-2011

Affidamento gratuito del corso di:

Chimica fisica dei Materiali I (II mod.) 4CFU (CHIM02) laurea triennale in Scienza dei Materiali

Laboratorio di Chimica Fisica III 4 CFU(CHIM02) laurea triennale in Scienze e Tecnologie chimiche

Dal A.A. 2011-2012 al AA: 2013-2014

Affidamento gratuito di

Laboratorio di Chimica Fisica III 4 CFU (CHIM02) laurea triennale in Scienze e Tecnologie chimiche

Chimica Fisica Stato solido e superfici 6 CFU (CHIM02) laurea magistrale in scienza dei materiali

DAL A.A. 2014-2015 AL 2016-2017

Titolare dei seguenti insegnamenti:

Chimica Fisica III 6 CFU (CHIM02) corso di laurea triennale in scienze e tecnologie chimiche

Chimica Fisica Stato solido e superfici 6 CFU (CHIM02) corso di laurea magistrale in scienza dei materiali

Materiali e Dispositivi per Energia (ING-INF/01) 4CFU corso di laurea magistrale in scienza dei materiali

DAL A.A. 2017-2018 AL 2020/2021

Titolare dei seguenti insegnamenti :

Chimica Fisica III e laboratorio 6 CFU corso di laurea triennale in scienze e tecnologie chimiche

Physical Chemistry of Solid State and Surfaces (CHIM02) (6CFU) Corso di laurea in Material Science

Materiali e Dispositivi per Energia (ING-INF/01) 4CFU corso di laurea magistrale in scienza dei materiali

### **ATTIVITA' DIDATTICA PRESSO ATENEI STRANIERI**

- Docente al *4th Intensive Course in Materials Science*, 20/9-1/10/1993, Tuebingen, University of Tuebingen (Germania), Institute of Physical and Theoretical Chemistry
- Docente al *5th Intensive Course in Materials Science*, 12-24/9/1994, Canterbury, University of Kent (Regno Unito)

### **Supervisione di STUDENTI DI DOTTORATO**

1. Manuel Morgano "Electrical and optical characterization of nanostructured silicon oxide films for advanced photovoltaic applications" Dottorato in nanostrutture e nanotecnologie , XXIV ciclo Università degli Studi di Milano –Bicocca
2. Sourav Kanti Jana "Light harvesting methods in photovoltaic devices with superficial treatments" Dottorato in Scienza dei Materiali, XXV ciclo Università degli Studi di Milano - Bicocca
3. Sara Tombolato "Deposizione di film di  $\text{Cu}_2\text{ZnSnS}_4$  per applicazioni fotovoltaiche" Dottorato in Scienze Chimiche, XXVII ciclo, Università degli Studi di Milano -Bicocca
4. Luigi Frioni "Crescita e caratterizzazione di calcogenuri innovativi per applicazioni fotovoltaiche Dottorato di Ricerca in Scienza e Nanotecnologia dei Materiali XXXV ciclo Università degli Studi di Milano -Bicocca

Correlatrice di 2 tesi di dottorato di ricerca e di 2 tesi della Scuola di Specializzazione in Scienza e Tecnologie dei Materiali

### **Supervisione di Laureandi**

E' stata relatrice o correlatrice di circa 50 tesi di laurea triennali e magistrali in Scienze e Tecnologie Chimiche, Scienza dei Materiali e Scienze Fisiche

### **Responsabilità di studenti post doc e borsisti**

E' stata responsabile scientifico di 10 assegnisti di ricerca dell'Università degli Studi di Milano-Bicocca, per l'area scientifico disciplinare di Scienze Chimiche sui seguenti argomenti :

- Sviluppo di elettrodi di silicio nanostrutturati per la produzione di idrogeno mediante la decomposizione fotoelettrochimica dell'acqua (marzo 2006-marzo 2007)
- Caratterizzazione elettrica e spettroscopica di silicio di grado solare (gennaio 2007 – dicembre 2009)
- Caratterizzazione strutturale ed elettrica e studio della difettualità di film di silicio nanocristallino" (giugno 2006 - dicembre 2007)

- Caratterizzazione spettroscopica di materiali nano-compositi a base di TiO<sub>2</sub> e nanocristalli core/shell InP/ZnS dispersi in matrici polimeriche (gennaio 2011-dicembre 2011)
  - Sviluppo ed integrazione di down-shifter per incrementare l'efficienza di conversione di celle in silicio e in Cu(In,Ga)Se<sub>2</sub> (CIGS) (gennaio 2012- maggio 2012)
  - Soluzioni solide quaternarie per applicazioni fotovoltaiche (giugno 2012- maggio 2014)
  - Caratterizzazione strutturale, morfologica, ottica ed elettrica di strati epitassiali e multi giunzioni di semiconduttori III-V per celle fotovoltaiche (giugno2013-maggio 2015)
  - Soluzioni solide quaternarie per applicazioni fotovoltaiche (maggio 2014- dicembre 2017)
  - Sviluppo di processi di crescita da soluzione per celle solari inorganiche a base di calcogenuri e relative celle tandem (gennaio 2017- dicembre 2017)
  - Sviluppo di inchiostri per celle solari inorganiche a basso costo (marzo 2019 -in corso)
- Responsabile di una Posizione da ricercatore gennaio 2009- gennaio 2010 del CNISM (Consorzio Nazionale Interuniversitario per le Scienze Fisiche della Materia).
  - Responsabile di n. 1 borsa di ricerca dal 1/4/2017 al 30/11/2017

## **PROGETTI DI RICERCA**

**Coordinamento o Responsabile di unità** dei seguenti progetti di ricerca ammessi al finanziamento sulla base di bandi competitivi che prevedono la revisione tra pari

1. **Progetto Nazionale PON BEST4U** Tecnologie per delle solari Bifacciali ad alta efficienza per utility scale PON Ricerca e Innovazione 2014-2020 Responsabile Unità di Milano Bicocca (1-4-2020 - 30-9-2022)
2. **Progetto Europeo** EIT Raw Materials “Raw Material Ambassadors at schools 3.0 RM@schools3.0 ” Responsabile Unità Milano Bicocca (1.1.2018 - 31.12.2020)
3. **Progetto Europeo** EIT Raw Materials RMSchools-4 Responsabile Unità Milano Bicocca (1.1.2021 - 31.12.2023)
4. **Progetto Europeo** EIT Raw Materials “RawMaterials Students Internships “RAISE ” (responsabile Unità Milano Bicocca) (1.7.2019 - 31.12.2021)
5. **Progetto Nazionale** scienza dei materiali nell'ambito del PIANO Lauree scientifiche bandito dal Ministero della Istruzioni e della Ricerca DM 976/2014 art 3. RESPONSABILE NAZIONALE (coordinamento di 9 Università italiane (Roma Tor Vergata, Torino, Piemonte Orientale, Genova; Cosenza; Bari; Padova, Napoli; Milano Bicocca ). 2018-2020
6. **Progetto Internazionale** Women in Engineering Academic Visitors Funding Scheme University of New South Wales UNSW Sydney AUSTRALIA (Luglio 2019 – dicembre 2019)
7. Progetto Bando Fondo di Ateneo quota competitiva finanziato dall'Università di Milano Bicocca “Taking n-type wafer to their ultimate limit” 2019-2021
8. **Progetto europeo: FP7-ENERGY.2013.10.1.5** Integrated Research Programme in the field of Photovoltaics “Cost-reduction through material optimisation and Higher EnErgy output of solAr pHotovoltaic modules - joining Europe’s Research and Development efforts in support of its PV industry “ CHEETACH” 2014-2017 (responsabile Unità Milano Bicocca)
9. **Progetto Nazionale Agenzia Spaziale Italiana (ASI)** project n° 2013-052 R.0 CUP F48C13000160005 "Caratterizzazione di silicio multicristallino cresciuto in condizioni di microgravità a partire da silicio metallurgico –SISSI 2014-2017 Responsabile Nazionale
10. Progetto **Europeo ESA (European Spatial Agency)** project N° ESA AO-2009-LoI-0669 “Gravitational effects on heat and mass transport phenomena in directional solidification of upgraded metallurgical silicon for photovoltaic applications” SiSSi (Silicon-ISS Investigation) 2011-2015 (Responsabile Unità di Milano Bicocca)

11. Progetto Bando Fondo di Ateneo quota competitiva finanziato dall'Università di Milano Bicocca "Fabrication of thin film solar cells by the ultrasonic spray deposition of kesterite colloidal dispersions in non toxic solvents" 2016-2018
12. **Progetto Nazionale** scienza dei materiali nell'ambito del PIANO Lauree scientifiche 2014-2015 bandito dal Ministero della Istruzioni e della Ricerca DM 976/2014 art 3. RESPONSABILE NAZIONALE (coordinamento di 9 Università italiane (Roma Tor Vergata, Torino, Piemonte Orientale, Genova; Cosenza; Bari; Padova, Napoli; Milano Bicocca ). 2016-2018
13. **Progetto Europeo FP6 -2004 ENERGY-3** "Development of solar-grade silicon feedstock for crystalline wafers and cells by purification and crystallisation (FoXy)" (Leader del Workpackage "Material Characterization") 2006-2009 Responsabile Unità di Milano Bicocca
14. **Progetto internazionale** n. 90 Finanziato da Ministero dello Sviluppo Economico (MISE), con Istituto Commercio Estero (ICE) e Conferenza dei Rettori (CRUI) "Aumento dell'efficienza delle celle solari mediante modifica dello spettro solare, Responsabile Unità di Milano Bicocca (2008-2011)
15. Progetto "Lauree scientifiche di Scienza dei Materiali" Progetto del Ministero dell'Istruzione dell'Università, (Responsabile Unità di Milano Bicocca) 2005- 2013

**Partecipante** ai seguenti progetti di ricerca ammessi al finanziamento sulla base di bandi competitivi che prevedono la revisione tra pari:

#### **Progetti Europei**

1. 1990-1993 EU project Concepts for high efficiency multicrystalline silicon solar cells (Multi-Chess I)
2. 1993-1996 EU project "Concepts for high efficiency multicrystalline silicon solar cells (Multi-Chess II)
3. 1996-1999 EU Second Framework Programme Cost Effective Solar Silicon Technology (COSST) 1996-1999
4. 2000-2003 FP5-EESD Fast in Line characterization tools for crystalline silicon material and cell process quality control in the PV industry (FAST-IQ)
5. 2002-2005 FP5-EESD N-type Solar Grade Silicon for Efficient p+n Solar Cells (NESSI)
6. 2005-2008 FP6-2005 NMP "Nanocrystalline silicon film for Photovoltaic and Optoelectronic application (NanoPhoto)
7. 2012-2015 FP7-NMP SME-Targeted Collaborative Project (CP-TP) On the Fly alterable thin film solar modules for design driven applications (Solar Design)

**Progetti INTAS** (Associazione internazionale per la promozione della cooperazione con i ricercatori dei nuovi Stati indipendenti dell'ex Unione Sovietica )

- 2002-2005 INTAS Project nr. 01-0194 "Dislocations, extended defects and interfaces as effective source of room temperature photo and electroluminescence in silicon and silicon-germanium"

#### **Progetti nazionali PRIN**

2001- 2003 "Caratterizzazione dello stato difettivo di strati epitassiali di carburo di silicio e del suo effetto sulle prestazioni di rivelatori di radiazione per spettrometria",

#### **Progetti Fondazione Cariplo**

1. 2005-2007 "Development of nanostructured electrodes for the production of hydrogen via the photoelectrochemical splitting of water"
2. 2005-2008 "Tecnologie Epitassiali su Silicio per Elettronica e Optoelettronica"
3. 2009-2012 "Transparent Polymer NANOcomposites with Tailorable Optical Properties: Fabrication and Characterization"
4. 2011-2013 "QDs based solar cells grown by Droplet Epitaxy"

## **Progetti regionali**

1. 2008-2010 Progetto BANDO MD 2008 DELLA LOMBARDIA: “Celle Solari a Film sottile CuInGaSe<sub>2</sub>: sviluppo di nuove tecnologie di deposizione e di strutturazione laser”
2. 2012-2013 Progetti di ricerca industriale e sviluppo sperimentale nei settori strategici di Regione Lombardia e del Ministero dell’Istruzione, dell’Università e della Ricerca (MIUR). “Celle solari CIGS a concentrazione”
3. 2018-2020 Progetto Bando Regione LOMBARDIA LINEA “ACCORDI PER LA RICERCA E L’INNOVAZIONE PROGRAMMA OPERATIVO REGIONALE 2014-2020 “PERFORM WATER 2030 - Platform for Integrated Operation Research and Management of Public Water towards 2030”

## **CONTRATTI DI RICERCA CON CENTRI DI RICERCA E AZIENDE**

### **Responsabile dei seguenti contratti :**

- Contratto di ricerca con Centro di Ricerca ENEA avente come argomento “Sviluppo di inchiestri e di buffer layer alternativi al CdS mediante ALD per celle solari a base di kesteriti” n° ID IRIS: 2019-NOECO-0156. Contributo massimo 100.000 euro (gennaio 2020 - 30 dicembre 2021)
- Dal 2020 al 2022 Contratto di ricerca con la società RSE SpA - Ricerca sul Sistema Energetico- avente come argomento “Sviluppo di film sottili assorbitori alternativi agli attuali calcogenuri, basati su metalli abbondanti sulla Terra e di elevata stabilità, come i calcogenuri appartenenti alla famiglia Cu<sub>2</sub>M (II) M (IV) S<sub>4</sub> (con M (II) = Mn, Fe, Co, Ni, Cd, Ba; M (IV) = Si, Ge, Sn)”. Importo 6000 +IVA
- Dal 2017 al 2019 Contratto di ricerca con la società RSE spa avente come argomento “Crescita e caratterizzazione di film sottili di calcogenuri per applicazioni FV”
- Dal 2015 al 2017 Contratto di ricerca con Centro di Ricerca ENEA avente come argomento "Sviluppo di strati buffer per celle a base di Cu<sub>2</sub>ZnSnS<sub>4</sub> (CZTS) " n° CUP I82I14000270001 Importo 40000 euro +IVA.
- Dal 2015 al 2019 contratto di ricerca con la società CESI S.p.A Segrate (Italia). Argomento di ricerca:"Analisi spettroscopiche di film per applicazioni fotovoltaiche" (Importo 8000 euro +IVA).
- 2014-2015 Contratto di ricerca con la società PILEGROWTH TECH s.r.l. Argomento di ricerca: “Catterizzazione di strati semiconduttori III-V e relative celle fotovoltaiche” importo totale 55.000 euro +IVA
- 2013-2014 Contratto di ricerca con la società PILEGROWTH TECH s.r.l . Argomento di ricerca : “Deposizione epitassiale su substrati litografati in profondità e caratterizzazione di strati semiconduttori III-V per celle fotovoltaiche , rivelatori e sorgenti di radiazione” importo 66000 euro+IVA
- 2012-2015 Contratto di ricerca con la società CESI S.p.A Segrate (Italia). Argomento di ricerca:"Analisi spettroscopiche di film per applicazioni fotovoltaiche” per un importo di euro 5000 + IVA
- 2011-2012 Contratto di ricerca con la società internazionale Tetra Pak Packaging Solutions AB Lund, (Svezia). Argomento di ricerca "Diffusion Phenomena in Polymers " per un importo di euro 30.000 +IVA
- 2010-2011 Contratto di ricerca con la società internazionale Tetra Pak Packaging Solutions S.p.A Modena, Italy Argomento di ricerca: "Openings and critical properties of the PLH

(Pre-Laminated Holes) technology on carton based packaging materials II" per un importo di euro 50.000 + IVA.

- 2009-2010 contratto di ricerca con la società internazionale Tetra Pak Packaging Solutions S.p.A Modena, Italy , Argomento di ricerca: "Openings and critical properties of the PLH (Pre-Laminated Holes) technology on carton based packaging , materials" per un importo di euro 100.000 + IVA.

**Partecipante ai seguenti contratti di ricerca :**

- 2010-2013 Contratto di ricerca con ENI S.p.A per un importo di euro 290.000 + IVA. Argomento di ricerca : "Collaborazione su foto sensibilizzatori organici per Dye Sensitized Solar cells DSC"

## **ATTIVITA' DI TRASFERIMENTO TECNOLOGICO**

- Partecipante alla **Convenzione di Ricerca** tra Università di Milano Bicocca e la società Voltasolar s.p.a, per collaborazione scientifica, avente ad oggetto uno studio ed una ricerca riguardo all'uso, all'impiego, allo sviluppo, all'applicazione ed attuazione di un processo finalizzato alla realizzazione di un sistema / macchinario / prototipo per un successivo sviluppo industriale di un sistema di deposizione di film sottili per applicazioni fotovoltaiche (2008-2017)

## **BREVETTI**

1. Brevetto internazionale n° W02014/053626°1 dal titolo "Organic dye for a dye sensitized solar cells" data di pubblicazione 10 Aprile 2014. Inventori: Alessandro Abboto, Maurizio Acciarri, Paolo Biagini, Simona Binetti, Titolare: ENI S.p.A. e Università Milano-Bicocca.
2. Brevetto nazionale S. (2012) Colorante organico per una cella solare sensibilizzata da colorante. brevetto No. MI2012A001672 del 06/04/2014 Abboto, A., Acciarri, M., Biagini, P., & Binetti,
3. Brevetto Europeo n. EP 13425019.0. dal titolo " Impianto e procedimento per la produzione di un film semiconduttore" Plant and process for the production of a semiconductor film - N. EP2759619 del 30/07/2014 . Inventori: Acciarri Maurizio, Maurizio Meschia, Simona Binetti, Leo Miglio, Stefano Marchionna. Titolare: Università Milano Bicocca e Voltasolar s.p.a.

seguente famiglia di brevetti

4. BREVETTO ITALIANO PRIORITARIO "Nuovi composti per la cattura di anidride carbonica da miscele gassose e successivo rilascio e relativo procedimento" n. 1421688 del 31.03.2016 Domanda n. MI2014A000048 del 16.01.2014 Brevetto concesso
5. BREVETTO ITALIANO DIVISIONALE "Nuovi composti per la cattura di anidride carbonica da miscele gassose e successivo rilascio, relativo procedimento e impianto" n. 102015000086665 del 27.06.2018 Domanda n. 102015000086665 del 22.12.2015 Brevetto concesso (avente ad oggetto il gruppo di composti n. 3)
6. BREVETTO ITALIANO DIVISIONALE "Nuovi composti per la cattura di anidride carbonica da miscele gassose e successivo rilascio, relativo procedimento e impianto" n. 102015000086727 del 06.06.2018 Domanda n. 102015000086727 del 22.12.2015 Brevetto concesso (avente ad oggetto l'impianto)
7. ESTENSIONE INTERNAZIONALE PCT "Novel compounds for the capture of carbon dioxide from gaseous mixtures and subsequent release, related process and plant" n.

- PCT/IB2015/000038 del 16.01.2015 Pubblicazione n. WO 2015/107416 del 23.07.2015 I fase PCT (conclusa)
8. DOMANDA BREVETTO EUROPEO (Fase regionale PCT) n. 15707770.2 dell'11.08.2016 Pubblicazione n. 3094399 del 23.11.2016 Deposito replica 2° Azione Ufficiale in data 19.04.2018
  9. DOMANDA BREVETTO USA (Fase nazionale PCT) n. 15/111,649 del 14.07.2016 Deposito replica 2° Azione Ufficiale in data 11.04.2018 INVENTORI Prof. Maurizio Acciarri, Prof.ssa Simona Binetti, Dott. Bruno Vodopivec, Ing. Maurilio Meschia- TITOLARITÀ Università degli Studi di Milano Bicocca (100%)

## **COLLABORAZIONI INTERNAZIONALI E NAZIONALI**

Collabora da diversi anni e in maniera continuativa con i seguenti centri di ricerca o università INTERNAZIONALI principalmente per attività di **ricerca congiunta nell'ambito dell'energia**

- Energy research Centre of the Netherlands (ECN), Petten, The Netherlands, Dr. G. Coletti
- University of Science and Technology (NTNU), Department of Materials Science and Engineering, Trondheim, Norway, Prof.ssa Marisa di Sabatino
- Tallinn University of Technology ( Prof. Maarja Grossberg ; Department of Materials and Environmental Technologies ( TALLIN –ESTONIA)
- Ecole polytechnique, PARIS (FRANCE) (Prof. Pere Roca , Laboratoire PICM)
- University of South Wales (UNSW) Sydney, 2052, Australia, Prof. Ziv Hammerin, School of Photovoltaic and Renewable Energy Engineering
- Institute of Space and Astronautical Science/JAXA, Sagami-hara 252-5210, JAPAN , Prof. M. Tajima
- School of Engineering, The Australian National University, Canberra, ACT 0200, AUSTRALIA Prof. D. Macdonald
- International Solar Energy Research Center Konstanz (ISC), Konstanz, Germany, Dr. Radovan Kopecek and Dr. Joris Libal
- IMEC Belgium (Dr. Ivan Gordon)
- SINTEF Materials and Chemistry, Trondheim, Norway, Dr. Øvrelid Eivind
- Rudjer Boskovic Institute, Bijenicka Zagreb, Croatia, Prof. Branko Pivac

Collabora da diversi anni e in maniera continuativa con i seguenti centri di ricerca o università ITALIANE

- Università degli studi di Torino ( Prof.ssa Claudia Barolo)
- Politecnico di Milano (Prof.ssa Cinzia Cristiani , Prof. Luca Magagnin)
- Università di Roma Tor Vergata (Prof. Aldo Di Carlo)
- Università di Catania (Prof. Antonio Terrasi)
- CNR Parma ( Dr .Massimo Mazzer)
- ENEA Casaccia (Dr. Mario Tucci, Dr. Alberto Mittiga)
- ENEA Portici (Dr. Franco Roca , Dr.ssa Delle Veneri)
- Università di Pavia (Prof. Andreani)
- Università di Trento (prof. L. Pavesi, Prof. R. Brusa)
- Università di Venezia (Prof. Stefano Polizzi)
- Università di Napoli Federico II ( Prof. Umberto Coscia)

## **PARTECIPAZIONE A COMITATI DI VALUTAZIONE**

- **Valutatore di progetti di ricerca** per il Ministero della Scienza ed Educazione della Repubblica della Croazia (2008)
- **Valutatore della comunità europea** per l' ERC Starting Grant (2012)
- **Valutatore dei progetti dello Skoltech Insitute Moscow (Russia) per i progetti congiunti Skoltech-MIT Boston (USA)** (maggio 2020)
- **Valutatore per** Estonian Research Council (ETAg) (<http://www.etag.ee/en/>)
- Valutatore di progetti di ricerca per Israel Science Foundation (ISF) (2013)
- Valutatore per i progetti strategici finanziati da Research Council of Norway (2014).
- Valutatore del MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca) per il bando SIR 2014
- **Valutatore del MIUR** per il Programma per Giovani Ricercatori "Rita Levi Montalcini". Bando 2015
- Valutatore per LAZIO INNOVA per istruttorie tecnico/scientifiche delle domande pervenute alla Regione Lazio Settore di ricerca REPRISE settembre 2017
- Valutatore per il programma di finanziamento promosso dall'Università di Cagliari e sostenuto dalla **Fondazione Sardegna** gestito dalla Fondazione Cariplo (Marzo 2019)
- Valutatore per ADMIRE Marie Skłodowska-Curie Action COFUND Fellowship Programme in Advanced Materials Research.
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Ha fatto parte delle seguenti Commissioni giudicatrici

- Commissione giudicatrice concorso da Ricercatore RTDA Università di Pavia Settore CHIM02 Luglio 2019
- Commissione giudicatrice concorso da Ricercatore RTDA Università di Milano Bicocca Pavia Settore CHIM02 Luglio 2019
- Commissioni giudicatrici concorso da Ricercatore RTDB Università La Sapienza Roma, Dicembre 2018
- Commissione Giudicatrice per gli esami finali del Dottorato di ricerca in “Dispositivi Elettronici” XIX Ciclo, Politecnico di Torino, 2 marzo 2007
- Commissione Giudicatrice esami finali del dottorato in Fisica, Università di Trento, 9 novembre 2007
- Commissione Giudicatrice per gli esami finali del dottorato in Scienze Chimiche (sottosectore Chimica Fisica ed Elettrochimica), Università degli Studi di Milano, 15 dicembre 2007
- Commissione Giudicatrice esami finali del dottorato in Fisica, Università di Trento, dicembre 2009
- Commissione (First Opponent) dell'esame finale di dottorato e della “trial Lecture” per la “Thesis for the degree of Philosophiae Doctor of Yacine Boulfrad” presso la Norwegian University of Science and Technology, NTNU Trondheim Norway 27 June 2012
- Commissione Giudicatrice per il conseguimento del titolo di dottore di ricerca in Fisica Università di Pavia , luglio 2013
- Commissione Giudicatrice per il Diploma di Licenza presso la Scuola Superiore di Catania; maggio 2014
- Commissione (First Opponent) dell'esame finale di dottorato e della “trial Lecture” NTNU Trondheim Norway 8 Marzo 2015

- Commissione Giudicatrice per il conseguimento del titolo di dottore di ricerca in Fisica commissione fisica della Materia-e Fisica Applicata Università degli Studi di Bologna 20 Marzo 2015
- Commissione Giudicatrice per il conseguimento del titolo di dottore di ricerca in ingegneria chimica Politecnico di Milano 31 Marzo 2015
- Commissione Giudicatrice per il conseguimento del titolo di dottore di ricerca Dottorato di Ricerca in “Scienza e Tecnologia dei Materiali” (XXVIII Ciclo). Politecnico di Torino, Torino 5 aprile 2016
- Commissione Giudicatrice per il conseguimento del titolo di dottore di ricerca dottorato di ricerca in scienza dei materiali e nanotecnologie, XXIX ciclo area chimico fisica Università di Catania 31 marzo 2017
- Commissione Giudicatrice per il conseguimento del titolo di dottore di ricerca in PhD degree in Information and Communication Technology XXX cycle Università La Sapienza, Roma
- Componente del CET stands for comitté d'encadrement de thèse ed esame finale conseguimento titolo University of Luxembourg luglio 2020 U
- Commissione Giudicatrice dell'esame di dottorato 17 giugno 2021 Mr. Tian's PhD thesis University of Delft
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### **RICONOSCIMENTI PER L'ATTIVITÀ SCIENTIFICA**

PREMIO "Innovation Grant" dell'Università degli Studi di Milano - Bicocca febbraio 2015

E' stata o è attualmente membro del International Advisory Board o del Scientific Committee delle conferenze internazionali qui sotto elencate :

1. The 9th International Conference on Polycrystalline Semiconductors, POLYSE 2006 Freudenstadt-Lauterbad, September 10-14, 2006 (Germany)
2. The 3rd International Workshop of Crystalline Silicon Solar Cells, CSSC-3, Trondheim 3-5 Giugno 2009 (Norway)
3. School of Chemistry and Physics of Materials for Energetics: A European School in Materials Science University of Milano-Bicocca 14-19 September 2009
4. The 4rd International Workshop of Crystalline Silicon Solar Cells, CSSC-4 Oct. 27-29, 2010, Taipei (Taiwan-Cina)
5. E-MRS 2010 Spring Meeting - Symposium I, June 7- 10, 2010 Strasbourg (France)
6. The 5rd International Workshop of Crystalline Silicon Solar Cells, CSSC-5 nov 2-5, 2011, Boston (USA)
7. EMRS Spring Meeting 2012 Symposium A “Advanced Materials Research for Electronic and Photovoltaic Applications III” 14-18 May 2012, Strasbourg (France)
8. The 6rd International Workshop of Crystalline Silicon Solar Cells, CSSC-6 8-11 October, 2012 Aix-les-Bains Congress Center, Aix-les-Bains, Savoie, (France)
9. Silicon Materials Workshop 2nd 7-8 October 2013, Rome (Italy)
10. The 7rd International Workshop of Crystalline Silicon Solar Cells, Oct. 22-25, 2013 Fukuoka, (Japan)
11. EMRS Spring Meeting 2014 Symposium X “Materials Research for Group IV Semiconductors: growth, characterization and technological developments” 25-30 May 2014, Lille (France)
12. The 8rd International Workshop of Crystalline Silicon Solar Cells, May 5 - 8, 2015 Bamberg (Germany)

13. "The First International Conference on Solar Energy (INCOSOLE 2015) and African Network for Solar Energy - ANSOLE, 4-5 May 2015, University of Bordj Bou Arreridj, Bordj Bou Arreridj (Algeria)
14. 9th International Workshop on Crystalline Silicon for Solar Cells (CSSC-9) and 3rd Silicon Materials Workshop Joint Workshop October 10-12, 2016 Arizona State USA
15. 10th International Workshop on Crystalline Silicon for Solar Cells (CSSC-10) April 2018 JAPAN
16. EMRS Spring Meeting 2016 Symposium X "Materials Research for Group IV Semiconductors: growth, characterization and technological developments" (France)
17. EMRS Spring Meeting 2018 Symposium "Materials Research for Group IV Semiconductors: growth, characterization and technological developments" (France)
18. EMRS Spring Meeting 2020 Symposium W "Materials Research for Group IV Semiconductors: growth, characterization and technological developments" (France)
19. The European Conference on Molecular Electronics, ECME The 2021 (da tenere dal 4 al 8 Ottobre 2021)

E delle seguenti conferenze nazionali :

- Dalla 12° al 20° edizione dell' "Italian Conference on Optics and Photonics"

## **ORGANIZZAZIONE DI CONVEGNI**

1. Membro della comitato organizzatore di *3rd Intensive Course in Materials Science (Erasmus Network of Materials Science)* Università di Milano, 14-25 settembre 1992.
2. Membro del comitato organizzatore del Congresso internazionale *POLYSE 95*, Gargnano (BS), 9-14/9/1995
3. Membro del comitato organizzatore del Congresso internazionale INSEL99, Milano 5-6 ottobre 2000.
4. Membro del comitato organizzatore di "*Photovoltaics & Nanotechnology : Nanocrystalline silicon , Advantages and drawbacks*" Milano , 18 settembre 2007
5. Organizzatrice della conferenza "*Il FV di prima generazione - Quali progressi per la tecnologia del silicio*", PVTECH Milano 2008, 5°Salone Internazionale dell'Industria e delle Tecnologie Fotovoltaiche 25-28 novembre 2008.
6. Membro del comitato organizzatore locale del XXXIX Congresso Nazionale di Chimica Fisica, Stresa, 20-24 settembre 2010
7. Organizzatrice della sessione "*Fotovoltaico e tecnologie energetiche innovative*" Congresso Società Italiana di Fisica SIF 29 settembre 2011. L'Aquila
8. Membro del comitato organizzatore del XVI Convegno SIO (Società Italiana di Orientamento) e organizzatrice del Workshop "*Orientamento e Lauree Scientifiche : l'esperienza del piano lauree scientifiche –PLS*" 15 ottobre 2015 Università di Milano Bicocca
9. Membro del comitato organizzatore del Convegno Nazionale piano lauree scientifiche "*Il piano Lauree Scientifiche e la riduzione del tasso di abbandono tra primo e secondo anno: innovazione di strumenti e di metodologie didattiche*" 7 febbraio 2018 – Aula Convegni CNR, ROMA

## **COMITATI EDITORIALI E SOCIETÀ PROFESSIONALI**

E' componente del comitato editoriali delle seguenti riviste :

- Frontier in Physics: Optics and Photonics section ISSN: 2296-8016
- Crystals — Open Access Journal (ISSN 2073-4352)

- International Journal of Photoenergy Hindawi Publishing Corporation (ISSN: 1110-662X)
- Dataset Papers in Materials Science ISSN: 2314-8497 Hindawi Publishing Corporation New York, USA
- Indian Journal of Materials Science ISSN: 2314-7490
- Editor della sezione Silicon-based photovoltaic in "Handbook of Silicon Photonics" (Publisher: Taylor & Francis) – 2010
- Membro della Società Chimica Italiana, divisione di chimica fisica e gruppo interdivisionale ENERCHEM
- Membro di INSTM (consorzio Interuniversitario Nazionale per la Scienza e la Tecnologia dei Materiali)
- Membro del Consorzio Nazionale Interuniversitario per le Scienze Fisiche della Materia (C.N.I.S.M)
- E' stata iscritta all'Istituto Nazionale Fisica Nucleare dal 1992 al 1997
- E' stata iscritta all'Istituto Nazionale per la Fisica della Materia dal 1992 al 2003

### **ATTIVITA' DI REFEREE**

Referee per le seguenti riviste internazionali: Nature Communications, Solar Energy Materials and Solar Cells, Applied Physics Letters, Solar Energy, Nanotechnology, Material Science Engineering B, Thin solid films, Optical materials, IEEE Journal of Photovoltaics, The European Physical Journal of Applied Physics, Semiconductor Science and Technology, Journal of Electronic Materials, Physica status solidi, (RRL) Rapid Research Letters, Journal of Materials Processing Technology (Elsevier), Applied Physics A (Springer), Material Science in Semiconductor Processing (Elsevier), Nanoscale Research Letters (NRL), Journal of Physics D: Applied Physics, Journal of Applied Physics, Advances in Condensed Matter Physics, Crystal Research and Technology, Journal of Photochemistry and Photobiology A: Chemistry, Academic Journals -Scientific Research and Essays, International Journal of Photoenergy, The Electrochemical Society Journals, ECS Journal of Solid State Science and Technology, Energy Science & Engineering, Indian Journal of Materials Science Hindawi; Material Chemistry and Physics, Silicon (Elsevier)

### **COMUNICAZIONI SU INVITO**

Presso conferenza internazionali o istituzioni straniere:

1. S.Binetti "Photoluminescence investigation of oxygen precipitates and dislocations" University of Freiberg, Institut fur Experimentelle Physik, 27 Novembre 2002, Freiberg (GERMANY)
2. S. Binetti " Photoluminescence emissions of oxygen precipitates and dislocations in silicon" Forum on the Science and Technology of Silicon Materials 2003, 25 November 2003, Kanagawa (JAPAN)
3. S.Binetti "Nanocrystalline silicon films grown by Low Energy Plasma Enhanced Chemical Deposition for optoelectronic application " Polyse 2004 International Conference on Polycrystalline Semiconductors 7 September 2004, University of Postdam (GERMANY)
4. S. Binetti, "Dopants determination in compensated silicon: spectroscopic and electrical methods and issues" Workshop on Crystalline silicon solar cells, & modules: materials and processes 1-4 August, 2010 Breckenridge Colorado (USA)
5. S. Binetti Silicon based solar cells: research progress and future perspectives 7th IEEE International Conference of GFP 2010, 2 September 2010 Beijing (CHINA)

6. S. Binetti Increasing the efficiency of Si-based solar cell using rare earth organic complexes as down-shifters China Semiconductor Technology International Conference (CSTIC) SEMI- CHINA 2011 March 13-14, 2011 Shanghai,(CHINA)
7. S. Binetti “Research activities on PV materials at the MIB-SOLAR CENTER of University of Milano Bicocca” Dept of Materials Scienza and Engineering at the Norwegian University of Science and Technology (NTNU ), 28th June 2012 Trondheim (NORWAY)
8. S. Binetti “Key success factors and future perspective of silicon based solar cells” Sixth International Symposium on "Advanced Science and Technology of Silicon Materials" (JSPS Si Symposium) 19 november 2012, Kona, Hawaii (USA)
9. S. Binetti “Photoluminescence and infrared spectroscopy for defect identification in silicon for photovoltaic application” Fraunhofer Institute for Integrated Systems and Device Technology IISB, 20 febbraio 2014 Erlangen (GERMANY)
10. S. Binetti “Cu(In,Ga)Se<sub>2</sub> solar cells on flexible substrate fabricated by an innovative roll to roll hybrid sputtering and evaporation process CNR-CAS Joint workshop, IMEM-CNR Parma, October 29, 2014
11. S. Binetti Research activities in @MIBSOLAR CENTER of University of Milano –Bicocca: an overview SINTEF research center 11 Marzo 2015, Oslo (NORWAY)
12. S. Binetti “Advanced Characterization for PV” CHEETACH workshop 4<sup>th</sup> January 2016 t Fraunhofer ISE Freiburg (GERMANY)
13. S. Binetti Workshop “CIGS development for thin film PV“ WORKSHOP: Novel customizable PVs, manufacturing processes and supportive actions for visionary architecture and product design” Wednesday 16th of December 2015, Università degli Studi di Milano-Bicocca (Italy)
14. S. Binetti “Flexible solar cells” in “Dispersed generation & microgrids: the new backbone of electric system”- POWER-GEN Europe and Renewable Energy World Europe Milano, 21-23 June 2016 (Italy)
15. S. Binetti “Raw materials in solar cells: state of art and perspective “Ramses: advanced School on critical raw materials substitution for energetic and photonic Milano- 5-10 September 2016 (Italy)
16. S. Binetti “Defects and Impurities in Silicon for Solar Cell” The 7th International Symposium on Advanced Science and Technology of Silicon Materials (JSPS Si Symposium), Nov. 21-25, 2016, Kona, Hawaii, (USA)
17. S. Binetti “Photoluminescence and infrared spectroscopy for impurities identification in silicon for photovoltaic applications” Workshop “Crystalline Silicon for Low Cost Photovoltaics” 10 July 2017 Paris (FRANCE)
18. S. Binetti “Chalcogenide thin film solar cells: research activity at UNIMIB-MIBSOLAR center “Italian-Kazakistan bilateral workshop “Our Common Future: Energy, Environment & Development” EXPO2017, 30 August 2017, Astana (KAZAKISTAN)
19. S. BINETTI “Kesterite Solar Cells: state of art and perspective£ 3rd November 2017 11:00 - 12:00 CET on line by CHEETAH webinar platform
20. S,Binetti “Photoluminescence and infrared spectroscopy for impurities identification in silicon for photovoltaic applications The 8th Forum on the Science and Technology of Silicon Materials 21-11-2018 Okayama (JAPAN)
21. S.Binetti “Dislocations density reduction, mitigation and advanced characterization of crystalline defects and impurities for high efficiency, cost effective silicon cells made from mono-cast wafers" PHOTOWATT 1 ottobre 2019 Lyon “Bourgoin-Jallieu, (FRANCE)
22. S. Binetti “Earth-abundant chalcogenide thin film for PV application: the activity of MIB-SOLAR centre at University of Milano Bicocca”, 27th November 2020 UNSW- School of Photovoltaic and Renewable Energy Engineering, SYDNEY(AUSTRALIA)

23. S. Binetti "Photoluminescence and infrared spectroscopy for impurities identification in silicon for photovoltaic applications", 28th November 2020 UNSW- School of Photovoltaic and Renewable Energy Engineering, SYDNEY(AUSTRALIA)
24. S. Binetti "Silicon, the key element for photovoltaic energy: past, present and future perspectives" The 4th edition of Avogadro Colloquia 2019, 17 Dicembre 2019 CNR Roma

Comunicazioni su invito presso Convegni, Centri di ricerca o Università Italiani

25. S. Binetti "Photoluminescence for Defects Identification in Silicon" Workshop Physics and Chemistry in silicon nanovoids Dipartimento di Fisica , Università di Modena 18/02/2008
26. S. Binetti " Le energie rinnovabili: motore per nuove imprese" Tavola rotonda Solar Expo Fiera Di Verona 7-9 maggio 2009, Verona
27. S. Binetti "Film sottili di CGIS su substrati flessibili" Tecnologie per un futuro fotovoltaico, 26 novembre 2009, Milano
28. S. Binetti "Coating organici per aumentare l'efficienza del silicio" Giornata di Studio su "Il futuro del silicio nel fotovoltaico" Convegno IEEE Photonics, 28 ottobre 2010, Trento
29. S. Binetti "Il fotovoltaico dalla prima alla terza generazione: sviluppo e applicabilità della ricerca", tavola rotonda. PV TECH 2010, 18 Novembre 2010 Milano, Italy
30. S. Binetti "Si solar cells: reasons of success, prospects to improve performance" Convegno "Materiali e superfici per il solare" organizzato da Poliefun Politecnico di Milano in collaborazione con PV Tech 2011, Enersolar+, 16 novembre 2011, Rho (Milano)
31. S. Binetti "Celle solari a film sottile: l'esperienza del centro MIBSOLAR" Giornata di studio "Il fotovoltaico in Italia: rischi e opportunità organizzato da associazione AEIT Italiana Politecnico di Milano, 29 novembre 2011 Milano
32. S. Binetti "MIBSOLAR researches on inorganic thin films "ZeroEmission Rome 2012, 5 settembre 2012, Roma
33. S. Binetti in "State of the art and perspective of inorganic photovoltaic: the research activity at MIBSOLAR" Italian National Conference on Condensed Matter Physics, 09-13 september 2013, Milano
34. S. Binetti "La Scienza dei Materiali per la scuola secondaria: interdisciplinarietà del progetto PLS" Smart Education & Tecnology Days - 3 giorni per la scuola" - XII edizione - 9-10-11 ottobre 2014, Città della Scienza, Napoli.
35. S. Binetti "Inorganic Photovoltaic devices: from silicon to new hybrid tandem cells" Energy Production , Storage and Conversion from Molecules to Devices at the Crossroads of Physical Chemistry 7- 12 June 2015 Otranto (Le)
36. S. Binetti "Inorganic based solar cells: research activity at MIBSOLAR – UNIMIB, 3 maggio 2017, ENEA Portici (NA)
37. S. Binetti "The current status and future prospects of chalcogenide thin film solar cells" XXIV Conference of the Italian Association of Vacuum (AIV) "Renewable Energies and Environment" Session 9 maggio 2019, Giardini Naxos (CT)
38. S. Binetti, "Material and Devices for Photovoltaics" Master in Strategic and Innovative O&M Management ENEL & Politecnico di Milano, 20 gennaio 2020, Bovisa, Milano

## **COMUNICAZIONI ORALI A CONGRESSI**

1. S. Pizzini, S. Binetti, D. Calcina, N. Morgante, A. Cavallini "Local Structure of erbium-silicon complexes in erbium doped silicon and its correlation with the optical activity of erbium" INFM meeting 16 Giugno 1999, Catania

2. S. Binetti, S. Pizzini, M. Guzzi, M. Casati "Photoluminescence spectra in plastically deformed silicon " Light Emission from Silicon INSEL 99 Milano 4 October 1991
3. S. Binetti, S. Pizzini, M. Acciarri, A. Le Donne. "Luminescence properties of thermal donors in silicon" Silicon Workshop, Genova February 7th-9th 2001
4. S. Binetti, S. Pizzini, E. Leoni, R. Somaschini, A. Castaldini, A. Cavallini "Optical Properties of Oxygen agglomerates in silicon "9th International Autumn Meeting Gettering and Defect Engineering in Semiconductor Technology 30 September- 4 October 2001, Catania
5. S. Binetti, S. Pizzini, E. Leoni, R. Somaschini, A. Castaldini, A. Cavallini "Optical properties of precipitates and dislocations in silicon" Silicon-Workshop – Genova February 6th-8th 2002
6. S. Binetti, A. Le Donne, S. Pizzini, V. Emtsev Photoluminescence bands and oxygen precipitation processes in high pressure annealed Czochralski silicon Silicon-Workshop – Genova February 2003
7. S. Binetti, S. Pizzini "Properties of nanocrystalline silicon films grown by LEPECVD for photovoltaic applications" XXI Congresso Nazionale della Società chimica Italiana Torino, 22-27 giugno 2003
8. S. Binetti "Nanocrystalline Silicon Films investigated by structural, optical and electrical methods" XXII Congresso Nazionale della Società chimica Italiana Firenze 2006
9. S. Binetti "Role of defects and defect interaction on the photovoltaic properties of solar grade silicon XX Congresso Nazionale di Chimica Fisica Gallipoli 2007
10. S. Binetti "Photoluminescence for Defects Identification in Silicon" Workshop Physics and Chemistry in Silicon Nanovoids" Dipartimento di Fisica Università di Modena, 19 febbraio 2008
11. S. Binetti "Study of defects and impurities in multicrystalline silicon grown from metallurgical silicon feedstock" E-MRS 2008 SPRING MEETING May 29 – 30, 2008 STRASBOURG (FRANCE)
12. S. Binetti, A. Le Donne, M. Acciarri "Organolanthanide down-shifters to improve Si-based solar cell efficiency" XXIII Congresso Nazionale S.C.I 5 luglio 2009 Sorrento (Napoli)
13. S. Binetti, A. Le Donne, M. Acciarri, D. Macdonald, T. Iwai, M. Tajima, Spectroscopic and electrical characterization of compensated silicon E-MRS 2010 Spring Meeting June 7- 10, 2010 Strasbourg (France)
14. S. Binetti, S. Tombolato, A. Le Donne, S. Marchionna, M. Acciarri "Kesterite : a new material for thin film solar cells deposited by sol gel method" 15° Convegno Nazionale delle tecnologie fotoniche, 21-23 maggio 2013, Milano
15. S. Binetti, A. Le Donne, A. Sassella "Photoluminescence and infrared spectroscopy for the identification of defects in silicon for photovoltaic applications" 2nd Silicon Materials Workshop, Rome, 7-8 October 2013
16. S. Binetti, M. Gonik, A. Le Donne, A. Croel "Silicon sample for PV application grown under reduced melt convection" E- MRS Spring Meeting May 26th -30 th May 2014, Lille (France)
17. S. Binetti, P. Garattini, R. Mereu , A. Le Donne, S. Marchionna, M. Meschia, A. Gasparotto, M. Acciarri "Cu(In, Ga) Se<sub>2</sub> solar cells on flexible substrate fabricated by an innovative roll to roll hybrid sputtering and evaporation process" E- MRS Spring Meeting May 26th - 30 th 2014, Lille (France)
18. S. Binetti "Effect of melt convection and gravity on SiC formation during growth process of PV silicon" E- MRS Spring Meeting 2016 Lille (FRANCE)
19. S. Binetti "New Earth-abundant thin film solar cells based on Cu<sub>2</sub>MnSnS<sub>4</sub>" XXVI Congresso Nazionale della Società chimica Italiana (SCI), Paestum 11-14 settembre 2017
20. S. Binetti "Insights into Striations in N-type Czochralsky wafers investigated via low-temperature hyperspectral and temperature –dependent spectral photoluminescence" 10th

## **PUBBLICAZIONI SCIENTIFICHE**

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### **PUBBLICAZIONI E DATI BIBLIOMETRICI**

Autrice o coautrice di 139 articoli scientifici in riviste internazionali peer-reviewed indicizzate  
4 capitoli di libri

5 brevetti, 2 domande di brevetto

27 pubblicazioni su proceedings

Scopus (Author ID: 7003698279) : H index 21 ; numero di citazioni totali 1442

Google Scholar : H index 24 ; numero citazioni totali 2122

[https://www.researchgate.net/profile/S\\_Binetti/](https://www.researchgate.net/profile/S_Binetti/)

ORCID Author ID: 7003698279 ; <http://orcid.org/0000-0002-8605-3896>

### **CAPITOLI LIBRI**

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1. S.Pizzini & S.Binetti “*Thin-film Si-based optoelectronics*” in Growth, Characterization and Electronic Applications of Si-based thin films, Ed. R.B. Bergmann, Research Signpost Publ. Kerala-India, p.101-128, (2002)(INDIA)
2. A. Le Donne & S. Binetti “*Solar spectrum modification to enhance silicon solar cells efficiency*” Chapter 16 del "Handbook of Silicon Photonics" Editors L.Vivien, L. Pavesi CRC Press, Taylor & Francis Group (2013) ISBN 9781439836101 (USA)
3. S.Binetti & A. Sassella “*Investigation of defects and impurities in silicon by infrared and photoluminescence spectroscopies*” Chapter 10 del libro “Silicon, Germanium, and Their Alloys: Growth, Defects, Impurities, and Nanocrystals” Editors G.Kissinger, S.Pizzini CRC Press, Taylor & Francis Group (USA)
4. C. del Cañizo Nadal, , S. Binetti, & T. Buonassisi, (2016). *Purity requirements for silicon in photovoltaic applications*. In, Solar Silicon Processes: Technologies, Challenges, and Opportunities (pp. 1-47). Editor B. Ceccaroli , CRC Press.

### **PUBBLICAZIONI SU PROCEEDINGS DI CONFERENZE INTERNAZIONALI SUL FOTOVOLTAICO**

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1. S. Pizzini, M. Acciarri, S. Binetti, S. Acerboni, M. Falconieri, L. Pirozzi, M. Garozzo: *About the effect of impurity contamination, processing and thermal annealing on the PV properties of polycrystalline silicon*; Proceedings of the 10th European Photovoltaic Solar Energy Conference 8-12 April 1991 Lisbon, Portugal, p.670. H.S. Stephens & Associated Publ. (1991)
2. S. Binetti, S. Ratti, M. Acciarri, S. Pizzini: *Study of different polycrystalline silicon materials: effect of hydrogen and deuterium passivation*; Proceeding of 12th European Photovoltaic Solar Energy Conference 11-15 April 1994 Amsterdam, The Netherlands , p.709 H.S. Stephens & Associated Publ. (1994)

3. M. Acciarri, S. Binetti, S. Ratti, C. Savigni, S. Pizzini, F. Ferrazza, D. Margadonna: *Study and conditioning of defected areas in Eurosil multycrystalline silicon*; Proceeding of 13th European Photovoltaic Solar Energy Conference 23-27 October 1995, Nice, France p.1336 H.S. Stephens & Associated Publ. (1995)
4. S. Pizzini, M. Acciarri, S. Binetti, D. Narducci, C. Savigni: *New Trends in Defect Passivation*; Proceedings of Sixth Workshop on the Role of Impurities and Defects in Silicon Device Processing 12-14 August, 1996 Snowmass, Colorado
5. S. Pizzini, M. Donghi, S. Binetti *Luminescenza da centri erbio in silicio: Una sfida per le applicazioni del silicio in optoelettronica* Atti del Convegno: "FAST Convegno Materiali: Ricerca e prospettive tecnologiche alle soglie del 2000" 10-14 Novembre 1997, Milano
6. M. Acciarri, S. Binetti, A. Bianco, P. Plescia, S. Pizzini *X-Ray Characterization of Surface And Sub-Surface Defects In Silicon Wafers For Solar Cells Production* Proceedings of The 17th European Photovoltaic Solar Energy Conference 2001 Monaco (Germania)
7. M. Acciarri, S. Binetti, A. Racz, A. Arcari, G. Agostinelli, S. Pizzini *Fast Laser Scanning For In-Line Solar Cells Characterization In Photovoltaic Industry* Proceedings of The 17th European Photovoltaic Solar Energy Conference 2001 Monaco (Germania)
8. M. Acciarri S. Binetti, A. Le Donne, S. Marchionna, S. Pizzini, J. Libal, R. Kopecek, P. Fath, B. Geerligs, K. Wambach "Spectroscopical and electrical characterization of n-type multycrystalline silicon" Proceedings of the 20th European Photovoltaic Solar Energy Conference 2005 p. 1198
9. M. Acciarri, S. Binetti, A. Le Donne, S. Marchionna, S. Pizzini, J. Libal, R. Kopecek, I. Röver, K. Wambach *Spectroscopic and electrical characterization of gettering effect in p- and n-type multi-crystalline silicon* 21th European Photovoltaic Solar Energy Conference and Exhibition Dresden, Germany 4-8 September 2006
10. M. Di Sabatino, S. Binetti, E.J. Øvrelid, M. Acciarri, J. Libal *Chemical and electrical characterization of n and p type multycrystalline solar grade silicon wafers* 22th European Photovoltaic Solar Energy Conference and Exhibition Milano, Italy 1-7 September 2007
11. J. Libal, M. Acciarri, S. Binetti, R. Kopecek, R. Petres, C. Knopf, K. Wambach *Effect of Extend defects on the electrical properties of compensated solar grade multycrystalline silicon* 22th European Photovoltaic Solar Energy Conference and Exhibition Milano, Italy 1-7 September 2007
12. M. Di Sabatino, E.J. Øvrelid, R. Kopecek, S. Binetti, V.D. Mihailitchi, L. Geerligs, A.N. Værnes "FoXy-Development of solar-grade silicon feedstock for crystalline wafers and cells by purification and crystallisation" 24th European Photovoltaic Solar Energy Conference and Exhibition, 21 - 25 September 2009 Hamburg – Germany
13. M. Acciarri, S. Binetti, A. Le Donne, L. Miglio, R. Moneta, S. Marchionna, S. Pellegrino, G. Canotti, *An Industrial approach for Cu(In,Ga)Se<sub>2</sub> thin film deposition on flexible substrate* Proceedings of the 25rd European Photovoltaic Solar Valencia (Spain), September 2010
14. Binetti S, Acciarri M. "Dopants determination in compensated silicon: spectroscopic and electrical methods and issues" Proceedings of 20<sup>th</sup> Workshop on Crystalline silicon solar cells, & modules: materials and processes 1-4 August, 2010 Breckenridge Colorado (USA)
15. M. Acciarri, A. Le Donne, L. Miglio S. Binetti S. Marchionna, R. Moneta M. Meschia *Cu(In,Ga)Se<sub>2</sub> "Cu(In,Ga)Se<sub>2</sub> thin film deposition for solar cell based on a hybrid sputtering/evaporation method"* Proceedings of Fotonica 2011, 13° convegno nazionale delle tecnologie fotoniche Genova, 9-11 maggio 2011 ISBN 9788887237122
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18. M. Acciarri, S. Binetti, A. Le Donne, B. Vodopivec, L. Miglio, S. Marchionna, M. Meschia, R. Moneta "Cu(In,Ga)Se<sub>2</sub> thin film deposition for solar cell based on a hybrid sputtering/evaporation method" Proceedings of 27th European Photovoltaic Solar Energy Conference and Exhibition Frankfurt, Germany 24-28 September 2012.
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## **BREVE DESCRIZIONE DELL'ATTIVITA' DI RICERCA**

L'attività scientifica di Simona Binetti, che dal 2006 si svolge in piena autonomia, indipendenza scientifica, progettuale ed economica, si colloca nell'ambito della chimica fisica dello stato solido, con attenzione sia agli aspetti fondamentali che applicativi dei materiali studiati.

L'attività di ricerca è stata orientata, fin dall'inizio della carriera accademica allo studio dell'influenza delle impurezze e dei difetti reticolari sulle proprietà elettriche e ottiche di materiali semiconduttori; in particolare sono stati studiati silicio (monocristallino, multicristallino e nanocristallino) e altri semiconduttori del IV gruppo principalmente per applicazioni energetiche, fotovoltaiche e/o optoelettroniche.

Nel corso di un'attività quasi trentennale, l'apporto originale di Simona Binetti è stato quello di contribuire alla comprensione dei processi fondamentali di interazione chimica fisica tra impurezze e difetti estesi e il loro effetto sulla funzionalità dei materiali, mediante principalmente l'utilizzo di tecniche spettroscopiche (fotoluminescenza, infrarosso, Raman, ecc). In particolare la tecnica di fotoluminescenza è stata, per la prima volta, utilizzata per seguire i processi di precipitazione omogenea ed eterogenea di ossigeno in silicio.

Simona Binetti ha inoltre sviluppato una particolare metodologia di analisi che è quella di studiare le proprietà dei materiali (elettriche ed ottiche) con diverse tecniche di caratterizzazione, ma considerando con attenzione le relazioni tra metodi preparativi e/o tecniche di crescita, struttura, difettualità e proprietà funzionali dei materiali stessi. Tale attività ha permesso nel corso degli anni l'otti-

mizzazione di processi di crescita o sintesi di materiali (silicio multicristallino, film epitassiali di silicio drogato Er, silicio nano cristallino, leghe quaternarie di calcogenuri). Benché sempre presenti dal 2008 si sono intensificate le attività di ricerca con risvolti applicativi nel campo delle energie rinnovabili in particolare nel fotovoltaico. La candidata è stata uno dei promotori per l'istituzione di un centro di ricerca interuniversitario (centro per lo studio dei materiali e dispositivi fotovoltaici MIBSOLAR), del quale attualmente è il direttore.

Dal punto di vista fondamentale i risultati più importanti sono stati:

- comprensione del processo di precipitazione di ossigeno in matrice solida quale silicio cristallino, in presenza di altri difetti puntuali ed estesi. In questo ambito si è chiarito il ruolo dell'ossigeno come responsabile della formazione dei centri otticamente ed elettricamente attivi e le proprietà ottiche delle dislocazioni anche generate in condizioni di elevato stress. Gli studi fatti in tale ambito sono risultati importanti anche per ottimizzare le efficienze di conversione di celle solari in silicio mono e policristallino

- modellizzazione del processo diffusivo di idrogeno e deuterio in presenza di dislocazioni e bordi grano

- correlazioni tra proprietà ottiche, elettriche e configurazione locale dell'erbio nel reticolo del silicio determinata mediante misure EXAFS in luce di sincrotrone (effettuate presso la facility europea di Grenoble); si è confermato il ruolo centrale dell'ossigeno come attivatore della luminescenza in silicio drogato Er

- relazioni tra proprietà optoelettroniche del sistema bifasico silicio amorfo e microcristallino e dimensioni dei grani, rapporto fra il volume delle due fasi, concentrazione di idrogeno nel materiale, estensione della superficie d'interfaccia tra regione cristallina e amorfa.

- effetto della copresenza di boro e fosforo sulle proprietà di luminescenza ed elettriche (mobilità e resistività) in silicio metallurgico o di grado solare per applicazioni fotovoltaiche (FV)

- individuazione, sintesi e studio delle proprietà di assorbimento e trasferimento di complessi organici di lantanidi a base di europio come down-shifters per aumentare le efficienze di celle solari commerciali

- ottimizzazione di un processo di deposizione innovativo di film di  $\text{CuInGaSe}_2$  per celle solari

- effetto della difettualità sulla efficienza delle celle solari a multigiunzione per applicazioni spaziali

- deposizione e relativa caratterizzazione di film di nuovi calcogenuri basati su elementi abbondanti in natura (quali  $\text{Cu}_2\text{ZnSnS}_4$ ) per applicazioni fotovoltaiche

## **Allegato C**

### **Dichiarazione di assenza di cause di incompatibilità rispetto alla qualità di Presidente/Componente di Commissione di gara**

**Oggetto: procedura negoziata ai sensi dell'art. 1, c.2, lett. b), della L. 120/20 per il servizio di consulenza per lo studio sperimentale e computazionale della stabilità a lungo termine e dei meccanismi di degradazione di assemblaggi membrana-elettrodi (MEA) per celle a combustibile a conduzione anionica, per le esigenze del Dipartimento di Scienza dei Materiali**

**C.I.G.: 8777734F3B**

**C.U.P.: B44G19000130008**

La sottoscritta Dott.ssa Chiara Ferrara \_\_\_\_\_

preso atto che hanno presentato l'offerta per la partecipazione alla gara in oggetto i seguenti Operatori Economici:

- POLITECNICO DI MILANO, avente Sede Legale in Milano, Piazza Leonardo da Vinci n. 32.

Consapevole della responsabilità e delle conseguenze previste in casi di rilascio di dichiarazioni mendaci, ai sensi e per gli effetti dell'art. 76 del D.P.R. n. 445/2000

### **DICHIARA**

Di confermare il contenuto della dichiarazione di cui all'Allegato A Domanda di iscrizione all'Elenco Commissari, ivi compreso il contenuto del CV ivi prodotto<sup>1</sup>.

### **DICHIARA**

che non sussistono cause di incompatibilità con l'incarico di Presidente/Componente di Commissione, e in particolare:

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<sup>1</sup> In caso di modifiche rispetto alla dichiarazione presentata, si prega di segnalare le stesse in allegato alla presente; si prega altresì di produrre nuovamente il proprio CV aggiornato, qualora diverso rispetto all'ultima versione presentata.

1. di non essere titolare di interessi privati, finanziari e non, che possano porsi in conflitto, anche potenziale, con l'esercizio imparziale delle funzioni affidate;
2. che rispetto alla gara in oggetto non sussistono interessi, finanziari e non, riconducibili al coniuge, ai parenti entro il quarto grado e/o a soggetti conviventi o a organizzazioni di cui il sottoscritto o il coniuge o i parenti entro il quarto grado e/o i conviventi siano amministratori o dirigenti;
3. di non avere in corso, ovvero di non avere svolto nel corso degli ultimi tre anni, incarichi, mandati, compiti, mansioni, servizi ovvero cariche, funzioni, uffici o situazioni assimilabili presso operatori economici che partecipino in veste di concorrenti alla gara in oggetto ovvero presso operatori economici ai primi legati da rapporto di controllo ovvero di collegamento societario;
4. di non essere stato condannato, anche con sentenza non passata in giudicato, per i reati previsti nel capo I del titolo II del libro secondo del codice penale;
5. di non avere riportato condanne penali passate in giudicato per reati che comportino l'interdizione perpetua dai pubblici uffici, ovvero di non essere, al momento attuale, a seguito di condanna penale passata in giudicato, sottoposto all'interdizione temporanea dai pubblici uffici;
6. di non svolgere o aver svolto alcun'altra funzione o incarico tecnico o amministrativo relativamente al contratto del cui affidamento si tratta (art. 77, co. 4, del D.Lgs. 50/2016);
7. di non incorrere in nessuna delle cause di incompatibilità e di astensione di cui ai commi 5 e 6 dell'art.77 del D.Lgs. 50/2016;

#### DICHIARA INOLTRE

1. di aver svolto le seguenti tipologie di impiego/lavoro, sia pubblico che privato, nel corso degli ultimi 5 anni, *(indicare anche il relativo datore di lavoro)*:

...assegnista di ricerca (Università degli Studi di Pavia), borsista (Università degli Studi Milano – Bicocca).....  
.....

#### DICHIARA ALTRESI'

- in ottemperanza con quanto previsto dalla vigente normativa sulla privacy, con la sottoscrizione del presente modulo, di aver preso visione dell'informativa sul trattamento dei propri dati personali ai sensi del Regolamento (EU) n. 679/2016 (pubblicata alla pagina

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[https://www.unimib.it/sites/default/files/Infrastrutture/Informativa\\_privacy%20UE%20centrale%20com%20mittenza\\_sito%20%281%29.pdf](https://www.unimib.it/sites/default/files/Infrastrutture/Informativa_privacy%20UE%20centrale%20com%20mittenza_sito%20%281%29.pdf) ) autorizzando nel contempo l'Ateneo al trattamento dei propri dati personali nell'ambito degli impieghi leciti previsti, ivi compresa la pubblicazione del proprio *curriculum vitae* sul sito istituzionale dell'Ateneo, ai sensi e per gli effetti dell'art. 29, c. del D.lgs. 50/16, dichiarando altresì che i dati ivi contenuti non sono da considerarsi riservati ai sensi dell'articolo 53 ovvero secretati ai sensi dell'articolo 162 del medesimo D.lgs. 50/16<sup>2</sup>;

- di obbligarsi inoltre a trattare con riservatezza i dati e le informazioni trasmesse o delle quali verrà in possesso durante l'espletamento delle attività, a non divulgarle e a non utilizzarle per scopi diversi da quelli convenuti e strettamente funzionali all'espletamento dell'oggetto di cui al presente incarico.

Pavia, 30/06/2021

FIRMA



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<sup>2</sup> Art. 29. (Principi in materia di trasparenza)

1. Tutti gli atti delle amministrazioni aggiudicatrici e degli enti aggiudicatori relativi alla programmazione di lavori, opere, servizi e forniture, nonché alle procedure per l'affidamento di appalti pubblici di servizi, forniture, lavori e opere, di concorsi pubblici di progettazione, di concorsi di idee e di concessioni, compresi quelli tra enti nell'ambito del settore pubblico di cui all'articolo 5, **alla composizione della commissione giudicatrice e ai curricula dei suoi componenti**, ove non considerati riservati ai sensi dell'articolo 53 ovvero secretati ai sensi dell'articolo 162, devono essere pubblicati e aggiornati sul profilo del committente, nella sezione "Amministrazione trasparente" con l'applicazione delle disposizioni di cui al decreto legislativo 14 marzo 2013, n. 33.

**CHIARA FERRARA**

Department of Materials Science – University Milano-Bicocca

Milano (MI) - Italy

Mobile

E-mail:

Date of birth:

**Research experience**

My research activity is focused on the synthesis and structural investigation of new materials (electrodes, electrolytes) for electrochemical devices (lithium- and post lithium-ion batteries, supercapacitors, fuel cells) through the implementation of multi-techniques approach involving X ray and neutron diffraction, solid state NMR, XPS, and microscopy techniques, preferring the in situ and in operando approaches that allow for the insight into the structure-properties correlations.

**Assistant Researcher (RTDa)** - Department of Materials Science, University Milano - Bicocca Oct. 2019 -

**Post Doc Researcher** - Department of Materials Science, University Milano - Bicocca project *"NMR study of materials for energy applications"* (supervisor: prof. Riccardo Ruffo). Research activities on synthesis and structural characterization of anode materials for lithium and sodium ion batteries with the use of solid-state NMR techniques and diffraction methods. Dec.2018-Sep.2019

**Post Doc Researcher** – Department of Chemistry, University of Pavia, project *"Synthesis and structural characterization of functional materials for rechargeable batteries"* (supervisor: prof. Piercarlo Mustarelli). Research activities focused on the synthesis and structural characterization of electrolytes materials for lithium and sodium ion batteries with the use of diffraction and NMR techniques. Nov.2016-Oct.2018

**Post Doc Researcher** – Department of Chemistry, University of Pavia, project *"Ceramic electrolytes for proton conducting fuel cells: structure, defects, ionic transport"* (supervisor: prof. Cristina Tealdi). Research activities focused on the theoretical calculation and modeling of materials with high proton conductivity to be used as electrolytes in solid oxide fuel cells. Nov.2014-Oct.2016

**Post Doc Researcher** – Department of Chemistry University of Pavia, project *"NMR investigation of functional materials"* (supervisor: prof. Piercarlo Mustarelli). Research activities focused on the NMR and MRI investigation of proton conducting membranes for polymer electrolyte membrane fuel cells. Nov.2013-Oct.2014

**Education**

**PhD defense** (Dottore di Ricerca – University of Pavia / Docteur en Chimie- I' Ecole Normale Supérieure de Lyon) with honors. Thesis and discussion in English evaluated by an international committee. Feb 2014

**Co-shared PhD research project in Chemistry** (University of Pavia, Italy and Ecole Normale Supérieure de Lyon, France) *"Modern Solid-State NMR techniques applied to the investigation of functional oxides"* under the supervision of profs. Piercarlo Mustarelli (Italy) and Guido Pintacuda (France). Research activities focused on the synthesis of materials for application in Nov. 2010/Oct. 2013

fuel cells and rechargeable batteries and their study mainly with the use of diffraction and NMR techniques.

**Master' s degree in Chemistry** (with honors) at University of Pavia with the thesis *"Perovskite-structure materials for innovative applications for energy"* completed under the supervision of prof. Piercarlo Mustarelli; Alumna of Collegio Santa Caterina da Siena. June 2010

**Bachelor' s Degree in Chemistry** (with honors) at University of Pavia. Thesis in Physical Chemistry: *"Proton conducting polymeric membranes for fuel cells- The role of the fillers"* under the supervision of prof. Piercarlo Mustarelli; Alumna of Collegio Santa Caterina da Siena. July 2008

### Visiting

**Ecole Normale Supérieure de Lyon** 2010-2014  
Co-shared Ph.D. project

**University of Bath – Laboratory of Prof. M. S. Islam** Sum.2015  
Visiting PostDoc Fellow

**Short research stays in the main neutron facilities in Europe** for implementation of experiments after obtaining beamtime (ILL in Grenoble (France), PSI in Villigen (Switzerland), FRMII in Garching (Germany), HZB in Berlin (Germany), Elettra (Trieste) 2010 -

### Research Project Activities

Topic: Activity leader for the synthesis and characterization of cathode and anode materials for sodium-ion batteries 2018-  
Grant: *"TowaRds sUstainable, high-performing, all-solid-state Sodium-ion baTteries (TRUST)"* (MIUR-PRIN 2017, National P.I., 606000 Euro). Supervisor/ University: University: Prof. Mustarelli, University Milano-Bicocca

Topic: Activity leader for sample preparation from rice production waste and their characterization 2016-2018  
Grant: *"Rice straw valorisation: recovery of inorganic and organic components"* (Project Cariplo 2016-2018) (Euro 130000, 4 people). Supervisor/ University: University: Prof. Mustarelli, University of Pavia

Topic: Activity leader for the instrumental set up and preparation of the custom MRI probe 2011-2013  
Grant: *"Electrochemical NMR Microscope: the ultimate challenge"* (Cariplo Prize for Frontier Research in Chemistry 2011, 165000 Euro, 7 people). Supervisor/ University: Prof. Mustarelli, University of Pavia

Topic: Activity leader for the synthesis and characterization of solid and flexible electrolytes for LIBs 2011-2013  
Grant: *"New electrolyte and electrode materials for thin-film lithium micro batteries"* (Project Cariplo 2011-2013) (Euro 90000, 6 people). Supervisor/ University: Prof. Mustarelli, University of Pavia

### Teaching activities

PhD advanced course "Crystallography and laboratory of X-ray powder diffraction" , PhD Course in Chemical, Geological, and Environmental Sciences, University of Milano – Bicocca 2020

Laboratory course of Physical Chemistry III of bachelor' s degree in Chemical Sciences and Technologies - University of Milano - Bicocca (48 h)	A.Y. 2020 - 2021
Laboratory course of Applied Physical Chemistry of master' s degree in Materials Science (English course) - University of Milano - Bicocca (36 h)	A.Y. 2019-2020
Laboratory course of Physical Chemistry III of bachelor' s degree in Chemical Sciences and Technologies - University of Milano - Bicocca (48 h)	A.Y. 2019-2020
Tutoring activities for the laboratory of Physical Chemistry II of bachelor' s degree in Chemical Sciences – University of Pavia (30 hours each A.Y.)	2010-2016
Member of the examination committees for the courses:	
<ul style="list-style-type: none"> <li>- Applied Physical Chemistry and Laboratory</li> <li>- Physical Chemistry III and Laboratory</li> <li>- Applied Physical Chemistry</li> <li>- Non equilibrium thermodynamics</li> <li>- Solid State Physical Chemistry</li> </ul>	

### **Oral presentation to conferences, seminars (when presenting author) and Organizing committee**

<u>Keynote presentation</u> "MXenes compounds as anode for sodium ion batteries; the impact of structure on the electrochemical behavior" / Post-lithium research: women in focus	2021
<u>Invited oral presentation</u> "Operando electrochemical NMR microscopy of polymer fuel cells" / Italian virtual workshop on fuel cells 2021 (virtual seminar)"	2021
<u>Organizing Committee Member</u> "First Italian workshop on energy storage" 24-26 Feb 2021, virtual conference	2021
Oral presentation " <sup>31</sup> P solid-state NMR investigation of red-to-black phosphorus mechanochemical conversion" at the XLVII Congresso Divisione Chimica Fisica - Società Chimica Italiana (Roma, Italia)	2019
<u>Award for the best oral presentation</u>	
<u>Invited seminar</u> "Structure and functional properties of materials for electrochemical devices" at the Department of Materials Science and Engineering of Korea Advanced Institute of Science & Technology (Daejeon, South Korea)	2019
<u>Organizing Committee Member</u> of the Italian-Korean Bilateral Workshop on Electrochemical Energy Storage (ITAKA) (Università Milano Bicocca, Milano, Italia)	2018
<u>Invited oral presentation</u> "Black phosphorus as anode for rechargeable Na ion batteries: the role of preparation" to the 2018 Fall Meeting European Materials Research Society (Warsaw, Poland)	2018
Oral presentation "Ion diffusion in tunnel-structures Na <sub>0.44</sub> MnO <sub>2</sub> cathode material for Na ion batteries" at the European congress and exhibition on advanced materials and processes EUROMAT 2017 (Thessaloniki, Greece)	2017
Oral presentation "Lattice strain effects on doping, hydration and proton transport in scheelite-type electrolytes for solid oxide fuel cells" at the 21 <sup>st</sup> International Conference on Solid State Ionics 2017 (Padova, Italia)	2017

Oral presentation "Average versus local structure in  $K_2NiF_4$ -type  $LaSrAlO_4$ : direct experimental evidence of local cationic ordering" at the International Symposium and Summer School "Nuclear Magnetic Resonance in Condensed Matter" (Saint Petersburg, Russia) 2012  
Award for the best presentation

#### **Poster presentation to conferences (when presenting author)**

"Structure and defect chemistry in the MAX phase and derived MXene structures" at the Rigaku user forum (Frankfurt, Germany) 2020

Invited poster "Exploring structure-properties relationships in materials for energy storage" to the Avogadro Colloquia (Rome, Italy) 2019

"Tackling the structure and defect chemistry of MAX phases and the derived MXene electrode materials" to the FullProf School and user meeting (Grenoble, France) 2019

"Structure properties correlation in MXene: 2D anodic materials for sodium ion batteries" at the Giornate dell' Elettrochimica Italiana (Padua, Italy) 2019

Award for the best poster presentation

"Structure of phosphorus polymorphs: and NMR and diffraction study" to the FullProf School (Grenoble, France) 2018

"Structural investigation of  $Li_2(Fe/Mn)SiO_4$ : a combined NMR-XRD study" at the Solid State Ionics (Padua, Italy) 2017

"Local versus average structure in  $LaSrAl_3O_7$ : a NMR and DFT investigation" at the Alpine Conference on Solid State NMR (Chamonix, France) 2013

#### **Awards and honors**

Awarded with the grant of the France Embassy in Italy (Campus France) to support the stays in France during the co-shared PhD project due to the excellent PhD project proposal 2011-2013

PhD grant from MIUR 2010

Grant for the stay in Collegio Santa Caterina da Siena due to the high score in the admission examination. Collegio Santa Caterina belongs to the Conferenza Collegi Universitari di Merito (Italian Colleges of Merits), accessible with selective criteria and stay in the College is related to the excellence in the university study results 2006

I declare that this curriculum vitae is a true and accurate statement of my current professional record.

## Allegato C

### Dichiarazione di assenza di cause di incompatibilità rispetto alla qualità di Presidente/Componente di Commissione di gara

**Oggetto: procedura negoziata ai sensi dell'art. 1, c.2, lett. b), della L. 120/20 per il servizio di consulenza per lo studio sperimentale e computazionale della stabilità a lungo termine e dei meccanismi di degradazione di assemblaggi membrana-elettrodi (MEA) per celle a combustibile a conduzione anionica, per le esigenze del Dipartimento di Scienza dei Materiali**

**C.I.G.: 8777734F3B**

**C.U.P.: B44G19000130008**

Il sottoscritto Dott. Carlo Santoro \_\_\_\_\_

preso atto che hanno presentato l'offerta per la partecipazione alla gara in oggetto i seguenti Operatori Economici:

- POLITECNICO DI MILANO, avente Sede Legale in Milano, Piazza Leonardo da Vinci n. 32.

Consapevole della responsabilità e delle conseguenze previste in casi di rilascio di dichiarazioni mendaci, ai sensi e per gli effetti dell'art. 76 del D.P.R. n. 445/2000

DICHIARA

Di confermare il contenuto della dichiarazione di cui all'Allegato A Domanda di iscrizione all'Elenco Commissari, ivi compreso il contenuto del CV ivi prodotto<sup>1</sup>.

DICHIARA

che non sussistono cause di incompatibilità con l'incarico di Presidente/Componente di Commissione, e in particolare:

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<sup>1</sup> In caso di modifiche rispetto alla dichiarazione presentata, si prega di segnalare le stesse in allegato alla presente; si prega altresì di produrre nuovamente il proprio CV aggiornato, qualora diverso rispetto all'ultima versione presentata.

1. di non essere titolare di interessi privati, finanziari e non, che possano porsi in conflitto, anche potenziale, con l'esercizio imparziale delle funzioni affidate;
2. che rispetto alla gara in oggetto non sussistono interessi, finanziari e non, riconducibili al coniuge, ai parenti entro il quarto grado e/o a soggetti conviventi o a organizzazioni di cui il sottoscritto o il coniuge o i parenti entro il quarto grado e/o i conviventi siano amministratori o dirigenti;
3. di non avere in corso, ovvero di non avere svolto nel corso degli ultimi tre anni, incarichi, mandati, compiti, mansioni, servizi ovvero cariche, funzioni, uffici o situazioni assimilabili presso operatori economici che partecipino in veste di concorrenti alla gara in oggetto ovvero presso operatori economici ai primi legati da rapporto di controllo ovvero di collegamento societario;
4. di non essere stato condannato, anche con sentenza non passata in giudicato, per i reati previsti nel capo I del titolo II del libro secondo del codice penale;
5. di non avere riportato condanne penali passate in giudicato per reati che comportino l'interdizione perpetua dai pubblici uffici, ovvero di non essere, al momento attuale, a seguito di condanna penale passata in giudicato, sottoposto all'interdizione temporanea dai pubblici uffici;
6. di non svolgere o aver svolto alcun'altra funzione o incarico tecnico o amministrativo relativamente al contratto del cui affidamento si tratta (art. 77, co. 4, del D.Lgs. 50/2016);
7. di non incorrere in nessuna delle cause di incompatibilità e di astensione di cui ai commi 5 e 6 dell'art.77 del D.Lgs. 50/2016;

#### DICHIARA INOLTRE

1. di aver svolto le seguenti tipologie di impiego/lavoro, sia pubblico che privato, nel corso degli ultimi 5 anni, (*indicare anche il relativo datore di lavoro*):

2017-2020, Professore Associato, University of The West of England (Regno Unito)

2020-2021, Lecturer, University of Manchester (Regno Unito)

2021-ora Università' degli Studi di Milano Bicocca (Italia)

#### DICHIARA ALTRESI'

- in ottemperanza con quanto previsto dalla vigente normativa sulla privacy, con la sottoscrizione del presente modulo, di aver preso visione dell'informativa sul trattamento dei propri dati personali ai sensi

UNIVERSITÀ DEGLI STUDI DI MILANO – BICOCCA  
Piazza dell'Ateneo Nuovo, 1 – 20126 Milano  
TEL. +39.2.6448.1 – Casella PEC: [ateneo.bicocca@pec.unimib.it](mailto:ateneo.bicocca@pec.unimib.it)  
C.F. / P. IVA 12621570154

del Regolamento (EU) n. 679/2016 (pubblicata alla pagina [https://www.unimib.it/sites/default/files/Infrastrutture/Informativa\\_privacy%20UE%20centrale%20committenza\\_sito%20%281%29.pdf](https://www.unimib.it/sites/default/files/Infrastrutture/Informativa_privacy%20UE%20centrale%20committenza_sito%20%281%29.pdf)) autorizzando nel contempo l'Ateneo al trattamento dei propri dati personali nell'ambito degli impieghi leciti previsti, ivi compresa la pubblicazione del proprio *curriculum vitae* sul sito istituzionale dell'Ateneo, ai sensi e per gli effetti dell'art. 29, c. del D.lgs. 50/16, dichiarando altresì che i dati ivi contenuti non sono da considerarsi riservati ai sensi dell'articolo 53 ovvero secretati ai sensi dell'articolo 162 del medesimo D.lgs. 50/16<sup>2</sup>;

- di obbligarsi inoltre a trattare con riservatezza i dati e le informazioni trasmesse o delle quali verrà in possesso durante l'espletamento delle attività, a non divulgarle e a non utilizzarle per scopi diversi da quelli convenuti e strettamente funzionali all'espletamento dell'oggetto di cui al presente incarico.

Luogo e data

Milano, 1/7/2021

FIRMA



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<sup>2</sup> Art. 29. (Principi in materia di trasparenza)

1. Tutti gli atti delle amministrazioni aggiudicatrici e degli enti aggiudicatori relativi alla programmazione di lavori, opere, servizi e forniture, nonché alle procedure per l'affidamento di appalti pubblici di servizi, forniture, lavori e opere, di concorsi pubblici di progettazione, di concorsi di idee e di concessioni, compresi quelli tra enti nell'ambito del settore pubblico di cui all'articolo 5, **alla composizione della commissione giudicatrice e ai curricula dei suoi componenti**, ove non considerati riservati ai sensi dell'articolo 53 ovvero secretati ai sensi dell'articolo 162, devono essere pubblicati e aggiornati sul profilo del committente, nella sezione "Amministrazione trasparente" con l'applicazione delle disposizioni di cui al decreto legislativo 14 marzo 2013, n. 33.

# CARLO SANTORO

## Assistant Professor (RTD b)

09/D2 ssd. ING/IND 24 - Principle of Chemical Engineering

Department of Material Science

Leader of the Electrocatalysis and Bioelectrocatalysis Lab (EBLab)

University of Milano-Bicocca (UNIMIB)



## RESEARCH AREA and INTERESTS

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Electrochemistry, environmental engineering, chemistry and microbiology. Renewable energies for energy production, wastewater treatment, hydrogen evolution and water desalination. Inorganic and abiotic materials (nanostructured and porous carbons, platinum group metals-free (PGM-free) catalysts) synthesis and characterization for sustainable bio-electrochemical systems and oxygen reduction reaction, hydrogen evolution reaction and CO<sub>2</sub> electroreduction. Bioelectrochemical Systems. Supercapacitors for energy storage. Electroactive biofilm characterization. Functionalization of bio-char for specific reactions. Device engineering: from single components to overall system.

## EDUCATION

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**UNIVERSITY OF CONNECTICUT**, Storrs-CT, USA

**08-2009 / 08-2013**

Department of Civil and Environmental Engineering

Environmental Engineering Program

- Doctor of Philosophy (GPA 4.0/4.0)

Ph.D. Degree Thesis Title: "*Cathode improvements in microbial fuel cell (MFC): from the platinum-based cathode to the bio-cathode*"

**POLITECNICO DI MILANO**, Milan, Italy

**09-2006 / 12-2008**

Department of Civil and Environmental Engineering

- Master of Science (with thesis)

M.S. Degree Thesis Title: "*Mass transport phenomena in a direct methanol fuel cell*"

**POLITECNICO DI MILANO**, Milan, Italy

**09-2002 / 07-2006**

Department of Civil and Environmental Engineering

- Bachelor of Science (with thesis)

B.S. Degree Thesis Title: "*Experimental analysis of diphase anodic flow in a direct methanol fuel cell*"

## RESEARCH APPOINTMENT and EXPERIENCE

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### Researcher (RTD type b)

**01-2021 / Currently**

UNIVERSITY OF MILANO-BICOCCA (UNIMIB)

Department of Material Science

- Bioelectrocatalysis and bioelectrochemical systems
- Biochar functionalization for specific reactions
- Electrocatalysts for fuel cells and electrolyzers

### Lecturer

**03-2020 / 01-2021**

UNIVERSITY OF MANCHESTER (UMAN)

School of Chemical Engineering and Analytical Science

- Integration of supercapacitive materials in bioelectrochemical systems
- Electrocatalysts for fuel cells and electrolyzers

**Research Assistant Professor****09-2017 / 09-2020**

Academic Title. This UNM faculty title is conferred to recognize and facilitate the contributions to the academic mission of UNM during this time period.

UNIVERSITY OF NEW MEXICO (UNM)

*UNM Center for Micro-Engineered Materials (CMEM)*

**Associate Professor****10-2017 / 01-2020**

**Deputy Director** of the Bristol BioEnergy Center (BBiC)

UNIVERSITY OF THE WEST OF ENGLAND (UWE Bristol)

*Bristol BioEnergy Center, Bristol Robotics Laboratory (BRL)*

- Integration of supercapacitive materials in microbial fuel cells for pulsed power generation.
- Integration of low-cost PGM-free catalysts iron-based for cathodes of bioelectrochemical systems.

**Research Assistant Professor****03-2016 / 09-2017**

Responsible of the microbial electrochemistry section of the group.

UNIVERSITY OF NEW MEXICO (UNM)

*Department of Chemical and Biological Engineering*

*UNM Center for Micro-Engineered Materials (CMEM)*

Main Advisor: Prof. Plamen Atanassov, Department of Chemical and Biological Engineering, University of New Mexico

- Integration of supercapacitive materials for bioelectrochemical systems for wastewater treatment, water desalination, hydrogen production and pulsed power production.
- Design and development of portable wastewater treatment device using bioelectrochemical systems for the degradation of organic substances and contaminants of emerging concerns.
- Synthesis and testing of novel low-cost platinum-free catalysts containing transition metals such as Fe-, Co-, Mn-, Ni- for cathodes of bioelectrochemical systems.

**Post Doctoral Fellow****02-2015 / 02-2016**

Responsible of the microbial electrochemistry section of the group.

UNIVERSITY OF NEW MEXICO (UNM)

*Department of Chemical and Biological Engineering*

*UNM Center for Micro-Engineered Materials (CMEM)*

Main Advisor: Prof. Plamen Atanassov, Department of Chemical and Biological Engineering, University of New Mexico

- Synthesis and testing of novel low-cost platinum-free catalysts containing transition metals such as Fe-, Co-, Mn-, Ni- for cathodes of bioelectrochemical systems.
- Integration of supercapacitive materials in bioelectrochemical systems for wastewater treatment and simultaneous production of high power pulses.

**Post Doctoral Fellow****08-2014 / 12-2014**

NANYANG TECHNOLOGICAL UNIVERSITY (NTU)

*Singapore Centre on Environmental Life Sciences Engineering (SCELSE)*

Main Advisor: Prof. Enrico Marsili, Nanyang Technological University

- Design, development and optimization of a biosensor for the measurement of volatile organic carbon (VOC) molecules using specific engineered bacteria attached to an electrode of carbonaceous material.
- Study and interpretation of electro-active biofilm formation (*Shewanella* MR-1) on 3D carbon surfaces.

**Post Doctoral Fellow****08-2013 / 07-2014**

Responsible of the microbial electrochemistry section of the group.

UNIVERSITY OF NEW MEXICO (UNM)

*Department of Chemical and Nuclear Engineering*

*UNM Center for Emerging Energy Technologies (CEET)*

Main Advisor: Prof. Plamen Atanasov, Dept. of Chemical and Nuclear Engineering, University of New Mexico

Other Advisor: Prof. Andrew Schuler, Dept. of Civil Engineering, University of New Mexico

- Investigation of bacterial attachment (pure and mixed culture) on flat surfaces and analysis of formation and biofilm development.
- Study of bacterial attachment, start-up time and current generated by self-assembly monolayers functionalized electrodes.
- Modification, characterization and optimization of high-surface and innovative carbon materials for chemical and biological fuel cells.
- Development of a biosensor based on the enzyme bilirubin oxidase to measure the oxygen concentration in aqueous media.

### **Doctorate Research**

**08-2009 / 08-2013**

UNIVERSITY OF CONNECTICUT (UCONN)

*Department of Civil and Environmental Engineering*

*Center for Clean Energy Engineering (C2E2)*

Main Advisor: Prof. Baikun Li, University of Connecticut

- Study of the (bio)electrochemical conversion of organic compounds for the production of electricity using bioelectrochemical systems.
- Development, characterization and optimization of novel low-cost carbon and inorganic nanometric and micrometric materials for anode/cathode electrode.
- Design and development of a large-scale benthic (sediment) microbial fuel cell for power generation.
- Study of biological cathodes based on sulfate-reducing bacteria for the reduction reaction.
- Development of a bioelectrochemical system treating human urine with simultaneous generation of electricity, removal of organic compounds and recovery of nutrients.
- Integration of enzymes into cathodes of bioelectrochemical systems for the production of electricity.
- Study of bioelectrochemical system capable of simultaneously producing electricity and electro-synthesize sodium or potassium hydroxide.

### **Bachelor and Master Research**

**09-2002 / 12-2008**

POLITECNICO DI MILANO

Department of Energy, M.R.T. Fuel Cell Laboratory

Main Advisor: Prof. Andrea Casalegno, Politecnico di Milano

- Study of transport phenomena (water, carbon dioxide and methanol) in a direct methanol fuel cell (DMFC) under different operating conditions.
- Study of electrode materials for optimizing water management, reducing methanol crossover and improving energy production in DMFC.

## **INTERNSHIP**

### **RSE (Ricerca sul Sistema Energetico) S.p.A.**

**05-08/2011**

Environmental and Sustainable Development Department, Milan, Italy.

Study of the bio-cathode in membraneless single chamber microbial fuel cell.

### **RSE (Ricerca sul Sistema Energetico) S.p.A. (part-time)**

**05-08/2010**

Environmental and Sustainable Development Department, Milan, Italy.

Electrochemical characterization of different platinum-free electrodes for microbial fuel cell system.

### **M.R.T. Fuel Cell Laboratory (part-time)**

**05-08/2010**

Department of Energy, Politecnico di Milano, Italy.

Characterization of different carbon porous media used for microbial fuel cell cathode. Examination of water diffusion fluxes and contact angles of carbonaceous materials.

### **Advanced Technologies for Energy Institute**

**09-11/2007**

ITAE-CNR "Nicola Giordano", Messina, Italy

Study of drop pressure of different PEMFC flow field; assemble of a PEM fuel cell stack prototype; control of the mechanical power distribution in the prototype; experimental electrochemical tests of different PEMFC single cell.

**Cesi Ricerca S.p.A.**

**08-10/2006**

Currently RSE (Ricerca sul Sistema Energetico) S.p.A. Milan, Italy.

Cogeneration tests of a Polymer Electrolyte Fuel Cell power system and related data analysis. Assistance and experimental activity with the solar thermodynamic generator EuroDish. Experimental data elaboration and reporting. Assistance to the maintenance activity of the biomass plant with an ORC turbo co-generator with elaboration data and reporting.

**Zentrum fur Sonnen Energie und Wasserstoff Forschung (ZSW)**

**08-10/2004**

Centre for Solar Energy and Hydrogen Research, Ulm, Germany.

Electrical and leakage experimental tests on Power System with hydrogen fuel cell operating under different experimental conditions and related data analysis and reporting. Participation at the design and at the assembly of a PEM fuel cell stack.

**Solarfocus GmbH**

**07/09-2003**

Solar, Biomass and Environmental Technology, Steyr, Austria.

Building and development of parabolic solar collector at concentration. Employee in the project and in the installation of solar thermal heating system. Employee in the development of biomass (pellet) boiler and of integrated system biomass boiler and solar collector.

## LANGUAGE SKILLS

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**Italian:** native language

**English:** excellent in writing, reading and speaking

## SUMMER SCHOOL

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1. **5<sup>th</sup> International Summer School on Advanced studies of Polymer Electrolyte Fuel Cells**, Graz University of Technology, September 3-7 2012, Graz, Austria.
2. **BIOCORR Summer School: Understanding Biocorrosion: Fundamentals and Applications**, University of Portsmouth, 25<sup>th</sup>-30<sup>th</sup> July 2011, Portsmouth, UK.

## INSTITUTIONAL RESPONSIBILITIES

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*University of Milano-Bicocca:*

Member of the Department Council

**01-2021 / Currently**

*University of Milano-Bicocca:*

Member of the Material Science Degree Council

**01-2021 / Currently**

*The University of Manchester:*

Member of the Department Council

**03-2020 / 01-2021**

## TEACHING EXPERIENCE and RESPONSIBILITIES

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### Leader

Applied Physical Chemistry with Laboratory

**Spring 2021**

**Lecturer (Modules leader).** F5302Q004. (3 CFU)

Dept. of Material Science – University of Milano-Bicocca

**Total teaching hours: 42h (HYBRID, VIRTUAL and Face-to-Face)**

Master of Engineering Coordinator

**Fall 2020**

(GRADUATE COURSE)

**Lecturer (Modules leader).** CHEN40100

Dissertation: Report & Individual Performance (10 CFU)

Dept. of Chemical Engineering and Analytical Science – University of Manchester

Organization of the coursework and the available projects. Allocation of students to professors. Teaching classes related to Research Plan, Objectives and Coordination of the assignments and the deadlines. Marking and moderation of marking. **Total teaching hours: 12h (VIRTUAL)**

## Sustainable Engineering

**Fall 2016**

(UNDERGRADUATE & GRADUATE COURSE)

**Lecturer (Module Leader).** CE 458-538 (3 CFU)

Dept. of Civil Engineering – University of New Mexico

The course included these topics: i) introduction and concept of sustainability; ii) quality of the water; iii) chemical and biological wastewater treatment and supply water; iv) energy and renewable energy; v) energy efficiency in buildings and processes; vi) atmospheric pollution; vii) exploitation of resources; viii) science behind climate change and global warming; ix) environmental management systems; x) life cycle analysis; xi) real LCA examples. **Total teaching hours: 36h**

## Teaching Assistant

### Fundamental of Environmental Engineering

**Fall 2012**

(UNDERGRAD COURSE)

Department of Civil and Environmental Engineering – University of Connecticut

**Guest lecturer** on: i) reactor design with particular attention to PFR and CSTR; ii) kinetics of chemical and bacterial degradation; iii) principles of atmospheric pollution and diffusion of pollutants through the Gaussian model; iv) biological wastewater treatment.

#### Teaching Assistant

- ✓ Guided student learning through individual sessions during weekly office hours.
- ✓ Developed, administered and graded course homework assignments and exams.

**Total teaching hours: 26h**

### Fundamental of Environmental Engineering I

**Fall 2011**

(UNDERGRAD COURSE)

Department of Civil and Environmental Engineering – University of Connecticut

**Guest lecturer** on: i) mass balance in environmental processes (air, water, soil); ii) kinetics of chemical and bacterial degradation; iii) thermodynamics and principles of heat transfer; iv) chemistry in aqueous environments, buffer capacity and gas dissolution in water.

#### Teaching Assistant

- ✓ Guided student learning through individual sessions during weekly office hours.
- ✓ Developed, administered and graded course homework assignments and exams.

**Total teaching hours: 26h**

## Guest Lecturer

Chemistry

**Fall 2020**

(GRADUATE COURSE)

Department of Chemistry – University of Florence

**Guest Lecturer** on: Microbial Electrochemical Technology

**Total teaching hours: 1h (VIRTUAL)**

### Electrochemistry in Biomedicine and Nanobiotechnology

**Spring 2020**

(GRADUATE COURSE)

Department of Biology – Aarhus University

**Guest Lecturer** on: i) Enzymatic Electrochemical Systems; ii) Biological Electrochemical Systems

**Total teaching hours: 2h (VIRTUAL)**

### Physical Chemistry of Environment and Energy Devices

**Spring 2020**

(UNDERGRAD COURSE)

Department of Chemistry “G. Ciamician” – University of Bologna

**Guest Lecturer** (taught in Italian) on: i) Fuel Cells and Platinum-free catalysts; ii) Biological Fuel Cells

**Total teaching hours: 4h (VIRTUAL)**

Sustainable Materials

**Spring 2019**

(UNDERGRAD COURSE)

Environmental, Design and Mathematics Dept. – UWE Bristol  
**Guest Lecturer** on sustainability of materials and Life Cycle Assessment (LCA)  
**Total teaching hours: 2h**

Energy Technology **Spring 2019**  
 (UNDERGRAD COURSE)

Faculty of Health and Applied Sciences – UWE Bristol  
**Guest Lecturer** on bioelectrochemical systems as energy technology  
**Total teaching hours: 2h**

Physical Chemical Treatment Processes **Spring 2014**  
 (GRAD COURSE)

Department of Civil Engineering – University of New Mexico  
**Guest Lecturer** on: i) filtration on granular support; ii) disinfection  
**Total teaching hours: 3h**

Water Quality Engineering **Spring 2013**  
 (UNDERGRAD & GRAD COURSE)

Department of Civil and Environmental Engineering – University of Connecticut  
**Guest lecturer** on: i) nitrification and denitrification; ii) biological and chemical phosphorous removal  
**Total teaching hours: 3h**

Environmental Biochemical Processes **Fall 2012**  
 (UNDERGRAD COURSE)

Department of Civil and Environmental Engineering – University of Connecticut  
**Guest lecturer** on: i) aerobic and anaerobic processes; ii) anaerobic digester design  
**Total teaching hours: 3h**

Environmental Microbiology **Fall 2010**  
 (UNDERGRAD COURSE)

Department of Civil and Environmental Engineering – University of Connecticut  
**Guest lecturer** on: i) aerobic and anaerobic processes for water treatment  
**Total teaching hours: 1.5h**

## MAIN INTERNATIONAL AWARDS

**Tajima Prize** **2020**

International Society of Electrochemistry (ISE)  
<https://www.ise-online.org/awards/taj.php>  
 Award total amount: 1,000 CHF

**Carl Wagner Medal of Excellence in Electrochemical Engineering** **2017**

European Federation of Chemical Engineering (Prague, Czech Republic, 4-8 June 2017)  
<https://www.chemicalprocessing.com/industrynews/2017/efce-honors-two-young-researchers/>  
 Award total amount: 1,500 €

**F.M. Becket Summer Research Fellowship** **2013**

Electrochemical Society (ECS)  
[http://www.electrochem.org/awards/ecs/recipient/summer\\_fellowship\\_recipients.htm#d](http://www.electrochem.org/awards/ecs/recipient/summer_fellowship_recipients.htm#d)  
 Award total amount: 5,000 US\$

## OTHER AWARDS or RECOGNITION

**Front Cover (ChemSusChem 4/2021)** **2021**

“How comparable are microbial electrochemical systems around the globe? An electrochemical and microbiological cross-laboratory study”. ChemSusChem DOI:10.1002/cssc.202100294

**Front Cover (ChemElectroChem 4/2020)** **2020**

“Boosting Microbial Fuel Cell Performance by Combining with an External Supercapacitor: An Electrochemical Study”. DOI: 10.1002/chem.202000084

**Oronzio and Niccolò De Nora Foundation Young Author Prize** **2019**

Mounika Kodali, M.Sc. student in Chemical Engineering at the University of New Mexico for which I was her co-supervisor was awarded by this recognition for the manuscript: M. Kodali, S. Herrera, S. Kabir, A. Serov, C. Santoro, I. Ieropoulos, P. Atanassov. Enhancement of Microbial Fuel Cell Performance by Introducing a Nano-composite Cathode Catalyst. *Electrochimica Acta* 2018, 265, 56-64. DOI: 10.1016/j.electacta.2018.01.118

**Top 100 in Chemistry, Scientific Report** **2018**

#27 most accessed chemistry article in 2018.

C. Santoro, C. Flores-Cadengo, F. Soavi, M. Kodali, I. Merino-Jimenez, I. Gajda, J. Greenman, I. Ieropoulos\*, P. Atanassov. Ceramic Microbial Fuel Cells Stack: Power Generation in Standard and Supercapacitive Mode. *Scientific Reports* 2018, 8, 3281. DOI: 10.1038/s41598-018-21404-y. <https://www.nature.com/collections/fgacaghde/>

**Cover Image for Biointerphases Volume 11, Issue 3, 2016** **2016**

K. Artyushkova, D. Roizman, C. Santoro, L.E. Doyle, A. Fatima Mohidin, P. Atanassov, E. Marsili. Anodic biofilms as the interphase for electro-active bacterial growth on carbon veil. *Biointerphases*. 2016, 11, 031013. doi: 10.1116/1.4962264 <http://scitation.aip.org/content/avs/journal/bip/11/3>

**Cover Image for Biointerphases Volume 10, Issue 3, 2015** **2015**

M. Santini, M. Guilizzoni, M. Lorenzi, P. Atanassov, E. Marsili, S. Fest-Santini, P. Cristiani, C. Santoro. Three-Dimensional X-ray Micro Computed Tomography of Carbonates and Biofilm On Operated Cathode In Single Chamber Microbial Fuel Cell. *Biointerphases*. 2015, 10, 031009. <http://scitation.aip.org/content/avs/journal/bip/10/3>

**Best Paper Award 2014** **2014**

Department of Civil Engineering, University of New Mexico

Manuscript: "Parameters characterization and optimization of activated carbon (AC) cathodes for microbial fuel cell applications". C. Santoro, K. Artyushkova, S. Babanova, P. Atanassov, I. Ieropoulos, M. Grattieri, P. Cristiani, S. Trasatti, B. Li, A.J. Schuler. *Bioresource Technology*, 2014, 163, 54-63. <http://civil.unm.edu/news/2014/10/dr.-andy-schuler-wins-best-paper-award.html>

**School of Engineering Fellowship** **2013**

University of Connecticut – School of Engineering for Graduate Doctoral Dissertation.  
Total amount: 2,000 US\$

**Environmental Leadership Awards (2010 – 2012)** **2012**

Environmental Leadership at the University of Connecticut (Runner up)  
(Graduate Student category). <http://ecohusky.uconn.edu/outreach/elas.html>

**Student Travel Grant** **2012**

222<sup>th</sup> Electrochemical Society Meeting, 7-12 October, 2012. Honolulu-HI USA  
Total amount: 1,000 US\$

**School of Engineering Fellowship** **2012**

University of Connecticut – Environmental Engineering pre-doctoral fellowship.  
Total amount: 2,000 US\$

**Research Fellowship** **2009**

M.R.T. Fuel Cell Laboratory, Department of Energy, Politecnico di Milano, Italy.  
Research project: "Development of micro and nano materials for direct methanol fuel cell".

**GRANTS** Total money secured: ≈1.153,500 €

**PI** (≈332,000 €), **Co-PI** (≈617,500 €), **Synchrotron** (equivalent ≈194,400 €)

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**Principal Investigator** (≈332,000 €)

2. **Pyrolysis processes for valorizing waste biomass and plastic through transformation into platinum-free catalysts for oxygen reduction and hydrogen evolution.** Sponsor: Program for young researchers "Rita Levi Montalcini" Italian Ministry of University and Research (MIUR). Amount: 315,081 €. Duration: 3 years. (PI)

This grant is competitive and peer reviewed. The work is based on pyrolysis of waste biomass and plastic for synthesizing electrocatalysts for oxygen reduction reaction and hydrogen evolution reaction. The catalysts obtained are fully studied in terms of surface chemistry and morphology through various microscopic and spectroscopic tools.

1. **The development of air-breathing cathodes for BioElectrochemical Sanitation Technology (BEST) systems.** Sponsor: J. Craig Venter Institute. July 2015 – July 2016. Total amount: 20,000 US\$. Duration: 1 year. (PI)

This grant is competitive and peer reviewed. The work is based on developing air-breathing cathodes containing platinum-free catalysts for the reduction of oxygen in bioelectrochemical systems. (PI)

#### **Co-Principal Investigator** (≈627,500 €)

4. **Bando Fondo di Ateneo – Quota Competitiva (FAQC).** Call for proposals: Building a low-carbon, climate resilient future: Research and innovation in support of the European Green Deal (H2020-LC-GD-2020). TOPIC ID: LC-GD-8-1-2020: Innovative, systemic zero-pollution solutions to protect health, environment and natural resources from persistent and mobile chemicals. Sponsor: University of Milano-Bicocca. Amount: 25,000 €. Duration: 1 year. XX 2021 – XX 2022. (co-PI)

This grant was obtained through the internal funding for rejected EU proposal with high score. The project is based on the detection and degradation of PFAS into groundwater and soil through bioelectrochemical systems.

3. **Biofilm evolution in microbial fuel cells fed Yeo Valley wastewater.** Sponsor: National Biofilms Innovation Center (NBIC). Amount: 47,500 £. Duration: 6 months. June 2019 – December 2019. (co-PI)

This grant is competitive and peer reviewed. The work is based on analyzing the biofilm development over the anode electrodes of microbial fuel cells fuelled with dairy wastewater collected at different stage.

2. **BioElectrochemical Treatment System (BETS) to Remove Contaminants of Emerging Concern.** Sponsor: US Army Medical Research and Materiel Command. Total UNM amount: 300,000 US\$. October 2015 – October 2017. Duration: 2 years. (co-PI)

This grant is competitive and peer reviewed. The work is based on fabricating a large scale bioelectrochemical system capable of degrading organic molecules and producing useful electricity. Major attention is devoted on the analysis of influents and effluents for the determination of emerging contaminants through high performance liquid chromatography (HPLC).

1. **Efficient Microbial Bio-electrochemical Systems.** Sponsor: Bill and Melinda Gates Foundation. Total UNM amount: 350,000 US\$. November 2015 – November 2017. Duration: 2 years. Investment ID OPP1139954. (co-PI)

This grant is competitive and peer reviewed. The work is based on synthesizing a new class of catalyst platinum-free for the reduction of oxygen in bioelectrochemical systems. The synthesis is based on high temperature and controlled atmosphere processes involving transition metals. The catalysts obtained are fully studied in terms of surface chemistry and morphology through various microscopic and spectroscopic tools.

#### **Synchrotron Application** (equivalent ≈194,400 €)

Co-Proposer (3); Total shifts: 54

3. **CERIC. ESRF Proposal 20212033 (2021).** Date: October 2021

Title: *Temperature dependant iron speciation by in-situ XAS during pyrolysis: Unravelling the formation of the active sites in FeNCs catalysts for the oxygen reduction reaction*

PI: Dr. Enrico Berretti (CNR-ICCOM, Florence, Italy)

Funding scheme: Beamtime Allocation. International competitive call

Facility: European Synchrotron Radiation Facility (ESRF, Grenoble)

Result: 18 shifts allocated

Equivalent funded amount: € 64,800 (€ 3,600 per shift)

2. **CERIC. ESRF Proposal 20207089 (2020).** Date: July 2021

Title: *Understanding the iron center anion interaction in FeNCs catalysts for the oxygen reduction reaction*

PI: Dr. Enrico Berretti (CNR-ICCOM, Florence, Italy)

Funding scheme: Beamtime Allocation. International competitive call  
Facility: European Synchrotron Radiation Facility (ESRF, Grenoble)  
Result: 21 shifts allocated  
Equivalent funded amount: € 75,600 (€ 3,600 per shift)

**1. Elettra Proposal 20205285 (2020).** Date: May 2021

Title: *XPS and XAS techniques for unraveling anions interaction with the active sites in Fe-N<sub>x</sub>-C catalysts for the oxygen reduction reaction*

PI: Dr. Valerio Ficca (University of Rome Tor Vergata, Italy)

Funding scheme: Beamtime Allocation. International competitive call

Facility: Elettra Synchrotron Trieste (Trieste, Italy)

Result: 15 shifts allocated

Equivalent funded amount: € 54,000 (€ 3,600 per shift)

## OTHER FUNDINGS

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**Startup Funding University of Manchester 2020.** The University of Manchester. **20,000 £.**

**Personal Development Research Fund (PDRF) 2019.** UWE Bristol. **750 £.**

**Personal Development Research Fund (PDRF) 2018.** UWE Bristol. **750 £.**

**Personal Development Research Fund (PDRF) 2017.** UWE Bristol. **750 £.**

## PATENTS

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**2. C. Santoro, A. Serov, P. Atanassov, C. Arbizzani, F. Soavi. Biological and Stand Alone Super-Capacitors for Water Treatment.** *U.S. Patent number No. 10,784,548*

**1. A. Serov, C. Santoro, P. Atanassov, Catalysts for Bio-Electrochemical Systems,** *Provisional US Patent Application 61/996,813* filed on May 14, 2014 (UNM 2014-110). This patent is **Exclusively Licensed** by Pajarito Powder Co.

## MAIN ADVISOR (1 PhD, 1 M.S.)

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### PhDs MAIN ADVISOR (1)

**1. Mohsin Muhyuddin.** *Philosophy Doctorate Degree.* Department of Material Science, University of Milano-Bicocca (Italy). **EXPECTED GRADUATION 2024 (IN PROGRESS)**

### Master of Science ADVISOR (1)

**1. Nicolo' Zocche.** *Master of Science Degree.* Department of Material Science, University of Milano-Bicocca (Italy). **EXPECTED GRADUATION 2021 (IN PROGRESS)**

## CO-ADVISOR (3 PhD, 7 M.S., 16 Undergraduate)

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### PhD Co-ADVISOR (3)

**3. Kayode Olaifa.** Co-advisor and Committee Member. *Philosophy Doctorate Degree.* School of Engineering and Digital Sciences, Nazarbayev University (Kazakhstan). **EXPECTED GRADUATION 2024. (IN PROGRESS)**

**2. Valerio C.A. Ficca.** Co-advisor and Committee Member. *Philosophy Doctorate Degree.* Department of Chemical Science and Technology, University of Rome Tor Vergata (Italy). **EXPECTED GRADUATION 2022. (IN PROGRESS)**

**1. Federico Poli.** Co-advisor and Committee Member. *Philosophy Doctorate Degree.* Department of Chemistry "G. Ciamician", University of Bologna (Italy). **EXPECTED GRADUATION 2022. (IN PROGRESS)**

### Master of Science Co-ADVISOR (7)

**7. Roberto Landone.** Co-advisor and Committee Member. **Master of Science Degree.** Department of Materials Science, University of Milano-Bicocca (Italy). **EXPECTED GRADUATION 2022.**

**6. Samuele Galli.** Co-advisor and Committee Member. **Master of Science Degree.** Department of Materials Science, University of Milano-Bicocca (Italy). **EXPECTED GRADUATION 2022.**

5. **Jacopo Seri.** Co-advisor and Committee Member. **Master of Science Degree.** Department of Chemistry "G. Ciamician", University of Bologna (Italy). **EXPECTED GRADUATION 2022.**
4. **Francisco Moruno Lopez.** Co-advisor and Committee Member. **Master of Science Degree.** Department of Civil Engineering, University of New Mexico (USA). Thesis Title: "Investigation of anion and cation exchange membranes for enhancing desalination and power generation in a microbial desalination cell". March **2018.**
3. **Mounika Kodali.** Co-advisor and Committee Member. **Master of Science Degree.** Department of Chemical and Biological Engineering, University of New Mexico (USA). Thesis Title: "Usage of Platinum Group Metal-free catalysts for Oxygen Reduction Reaction for Microbial Fuel Cells". April **2017.**
2. **Mosaddek Hossen.** Co-advisor and Committee Member. **Master of Science Degree.** Department of Chemical and Biological Engineering, University of New Mexico (USA). Thesis Title: "Electrochemical oxidation of antibiotic, antihistaminic, analgesic and CNS stimulant pharmaceuticals". November **2016.**
1. **Jeremiah Houghton.** Co-advisor and Committee Member. **Master of Science Degree** in Nanoscience and Microsystems Engineering Program, Department of Chemical and Biological Engineering, University of New Mexico (USA). Thesis title: "The effect of relative electrode size on the performance of a supercapacitive microbial fuel cell design". April **2016.**

## Undergraduate student co-ADVISED (16)

<b>Matteo Morigi</b> – University of Bologna	<b>2019 (B.Sc. Thesis)</b>
<b>Roxanne Awais</b> - University of New Mexico	<b>2017 (McNair Fellowship)</b>
<b>Sergio Herrera</b> - University of New Mexico	<b>2015-2017</b>
<b>Alexandra Yingling</b> - University of New Mexico	<b>2016</b>
<b>Jonathan Gordon</b> - University of New Mexico	<b>2016</b>
<b>Fernando Benito Abad</b> – University of New Mexico	<b>2016</b>
<b>Lydia Stariha</b> – Grinnel College	<b>2015</b>
<b>Abeed Fatima Mohidin</b> - Nanyang Technological University	<b>2014</b>
<b>Angie Galanto</b> - University of Connecticut	<b>2013</b>
<b>Robert J. Raggio</b> - University of Connecticut	<b>2013</b>
<b>Sharon Scott</b> - University of Connecticut	<b>2013</b>
<b>Michelle De Blasio</b> - University of Connecticut	<b>2012</b>
<b>Celicia Boyde</b> - University of Connecticut	<b>2012</b>
<b>William Hale</b> - University of Connecticut	<b>2011</b>
<b>Nirav Patel</b> – University of Connecticut	<b>2011</b>
<b>Matthew Cremens</b> - University of Connecticut	<b>2010-2012</b>

## EXTERNAL EXAMINER

PhD Thesis (6), M.Sc (1), M.Eng (6)

### Philosophy Doctorate (6)

6. **Jan Kruid.** *External Examiner.* **Philosophy Doctorate Degree.** Rhodes University Biotechnology Innovation Centre. Rhodes University (South Africa). Thesis Title: "Integration of dual metallophthalocyanine catalysis and green energy for sustainable oxidative removal of endocrine disrupting compounds". May **2021**
5. **Gabriele Rossetti.** *External Examiner.* **Philosophy Doctorate Degree.** Energy and Nuclear Science and Technology Doctoral Faculty, Politecnico di Milano (Italy). Thesis title: "Study and Development of a Durable and High Performance Non Carbon Support for PEM Fuel Cell Application". May **2021**
4. **B.A.M. Mahmoud.** *External Examiner.* **Philosophy Doctorate Degree.** Faculty of Natural and Agricultural Sciences, University of Pretoria (South Africa). Thesis Title: "Synthesis and characterization of ammonium transition metal phosphates and their carbon nanocomposites electrode materials for supercapacitors applications". March **2021**
3. **Maida Aysla Costa De Oliveira.** *External Examiner.* **Philosophy Doctorate Degree.** Department of Chemical Science and Technology, University of Rome Tor Vergata (Italy). Thesis title: "Development and Optimization of Nanostructured Carbon-based Materials for Energy Applications". October **2019**

2. **Simona Pentassuglia.** *External Examiner. Philosophy Doctorate Degree.* Department of Chemical Engineering, Politecnico di Torino (Italy). Thesis title: "Novel Microbe-Based Technologies for Bioelectricity and Biofuel Production". September **2019**
1. **Patrick Mclee.** *External Examiner. Philosophy Doctorate Degree.* Department of Civil Engineering, University of New Mexico. Thesis Title: "Moving Bed Biofilm Reactors: Evaluation of Geometry, Attachment Surface Material and Biofilm Populations on the Uptake of Ammonia and Synthetic Organic Contaminants In Wastewater". November **2016**.

### **Master of Science (1)**

1. **Yahya Al Ismaili.** *External Examiner. Master of Science Degree.* Dept. of Chemical Engineering and Analytical Science. The University of Manchester, UK. Thesis Title: "Production of Limonene Using Fractionation of Tyre Derived Oil (TDO) from Waste Tyre Pyrolysis". October **2020**

### **Master of Engineering (6)**

6. **Taylor Duncan.** *External Examiner. Master of Engineering Degree.* Dept. of Chemical Engineering and Analytical Science. The University of Manchester, UK. Thesis Title: "The Advantages of Titanium Oxide Doped Polyaniline for Ammonia Sensing". June **2020**
5. **Katja Eeckelers.** *External Examiner. Master of Engineering Degree.* Dept. of Chemical Engineering and Analytical Science. The University of Manchester, UK. Thesis Title: "Detection of ammonia in wastewater using a Polyaniline/Carbon Black Composite sensor". June **2020**
4. **Fred Erwin.** *External Examiner. Master of Engineering Degree.* Dept. of Chemical Engineering and Analytical Science. The University of Manchester, UK. Thesis Title: "A Theoretical Study of the Columnar Mesophase Structures Produced by Ternary and Quaternary Amphiphiles using Dissipative Particle Dynamics". May **2020**
3. **Christopher Oram.** *External Examiner. Master of Engineering Degree.* Dept. of Chemical Engineering and Analytical Science. The University of Manchester, UK. Thesis Title: "An Investigation into the Self-Assembly of Soft- Matter Systems using Dissipative Particle Dynamics: T- and X-Shaped Bolaamphiphiles". May **2020**
2. **Rosemary Hargrove.** *External Examiner. Master of Engineering Degree.* Dept. of Chemical Engineering and Analytical Science. The University of Manchester, UK. Thesis Title: "Investigating the Impact of Gender Diversity on Group Work in Chemical Engineering Education". May **2020**
1. **Jingyi Li.** *External Examiner. Master of Engineering Degree.* Dept. of Chemical Engineering and Analytical Science. The University of Manchester, UK. Thesis Title: "'Mind the Gap': A Study of Chemical Engineering Transferable Skills' Development in Practical Sessions". May **2020**

## **EXTERNAL REVIEWER**

### **PhD Thesis (5), PhD Proposal (3)**

5. **Michele Ferri.** *External Reviewer. Philosophy Doctorate Degree.* Department of Chemistry, University of Milan (Italy). Thesis Title: "Hydroxyapatite based materials for environmental processes". March **2021**
4. **Giorgia Daniel.** *External Reviewer. Philosophy Doctorate Degree.* Department of Chemistry, University of Padua (Italy). Thesis Title: "PGM-free cathode catalysts for PEM fuel cell based on M-N-C active sites starting by non-conventional polymer precursor materials". January **2021**
3. **Rosaceleste Zumpano.** *External Reviewer. Philosophy Doctorate Degree.* Department of Chemistry and Drug Technologies, University of Rome La Sapienza (Italy). Thesis title: "Nanostructure-based enzymatic biosensors and biofuel cells: characterization and applications". December **2020**
2. **Sara Busatto.** *External Reviewer. Philosophy Doctorate Degree.* Department of Molecular and Translational Medicine, University of Brescia (Italy). Thesis title: "Novel Routes for Manipulating and Engineering Extracellular Vesicles". January **2019**
1. **Ademola Adekunle.** *External Reviewer. Philosophy Doctorate Degree.* Department of Bioresource Engineering, McGill University (Canada). Thesis title: "Development of an autonomous biobattery/biosensor system for remote applications". May **2018**

### Philosophy Doctorate Proposal (3)

3. **Kayode Olaifa. External Examiner. Philosophy Doctorate Proposal.** Department of Chemical and Materials Engineering. Nazarbayev University. Kazakhstan. Proposal Title: "Bioelectrochemical Characterization of Candida Biofilms". November **2020**.
2. **Mariana Rodrigues. External Examiner. Philosophy Doctorate Proposal.** Wageningen Institute for Environment and Climate Research (WIMEK, Dutch acronym) at Wageningen University, The Netherlands. Proposal Title: "Optimization and upscaling of Electrochemical ammonia recovery". March **2019**.
1. **Steffen George. External Examiner. Philosophy Doctorate Proposal.** Wageningen Institute for Environment and Climate Research (WIMEK, Dutch acronym) at Wageningen University, The Netherlands. Proposal Title: "Application of Bio-Electrochemical Systems for Current Driven Ammonium Recovery". March **2018**.

## PROFESSIONAL ACTIVITIES

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### Consultant and external expertise in identifying Low Carbon Energy Supply

Workshop on Identification of Future Emerging Technologies for Low Carbon Energy Supply was organized by the European Union Joint Research Centre (JRC) in Ispra (Italy) developing an inventory of future emerging technologies relevant to energy supply, as part of the Commission's internal Low Carbon Energy Observatory project. The purpose was to address those technologies using the experience in specific fields and the relevant science and engineering aspects. TRLs were identified. 1 December 2016, JRC, Ispra (Italy).

### Project Reviewers for different agencies

- Call Strategic Basic Research - Industrial Research Fund Antwerp University Association (SBO IOF AUHA - 2018) – **Belgium**
- FWO, Fonds Wetenschappelijk Onderzoek – **Belgium**
- Natural Sciences and Engineering Research Council of Canada (NSERC) - **Canada**
- Chilean Antarctic Institute - **Chile**
- Czech Science Foundation - **Czech Republic**
- General Call for Proposal 2017 - Agence Nationale De La Recherche – **France**
- The National Center of Scientific and Technical Evaluation (NCSTE) – **Kazakhstan**
- Irish Research Council – **Ireland**
- National Research Foundation of Korea – **South Korea**
- Spanish Research Agency – **Spain**
- State Research Agency (AEI) - **Spain**
- National Science Center - **Poland**
- Biotechnology and Biological Science Research Council (BBSRC) - **UK**

### Journal Editorial Board

- ✓ **Catalysts** MDPI (**From 2018**). *Section Electrocatalysis*. IF: 3.52 (2019); 5-Year IF: 3.808 (2018)
- ✓ **Molecules** MDPI (**From 2019**). *Section Green Chemistry*. IF: 3.297 (2019); 5-Year IF: 3.380 (2018)
- ✓ **Chemosensors** MDPI (**From 2020**). *Section Electrochemical Devices and Sensors*. IF: 3.108 (2019)
- ✓ Review Editor, **Frontiers in Energy Research**. IF: 2.746 (2019)
- ✓ Review Editor, **Frontiers in Sensors**

### Editorial Activity

8. **Guest Editor** of a Special Issue related with microbial electrochemical technology on **Chemosensors** (MDPI). Title: "Recent Advancements in Microbial Electrochemical Technologies". [https://www.mdpi.com/journal/chemosensors/special\\_issues/AMET](https://www.mdpi.com/journal/chemosensors/special_issues/AMET). Expected August 2021 (**IN PROGRESS**)
7. **Guest Editor** of a Special Issue related with electrochemical energy storage and conversion on **Electrochimica Acta** (Elsevier). Title: "And Yet Electrochemical Energy Storage and Conversion Moves in 2021" (EESC 2021). Expected July 2021 (**IN PROGRESS**)

6. **Guest Editor** of a Special Issue related with electrocatalysts for electrochemical energy devices on **Catalysts** (MDPI). Title: "10<sup>th</sup> Anniversary of Catalysts: Achievements in Electrocatalysis for Sustainable Energy Technologies". *Expected July 2021 (IN PROGRESS)*
5. **Guest Editor** of a Special Issue related with bioprocesses for energy and environment on **Journal of Environmental Chemical Engineering** (Elsevier). Title: "Recent Advances in Bioprocess for Sustainable Environment and Energy". *Expected April 2021 (IN PROGRESS)*
4. **Associate Editor** for **Proceedings of the IEEE Conference on Nanotechnology** related to the IEEE Nano 2020 (Institute of Electrical and Electronics Engineers) (2020)
3. **Editorial** for **ChemElectroChem** (Wiley) with a Special Collection on Bioelectrochemistry to Prof. Gorton on the occasion of his 70<sup>th</sup> birthday. **EDITORIAL**. P. Bollella, **C. Santoro**, P. Cristiani, P. Atanassov. Bioelectrochemistry: An Electrifying Experience Over 70 Years. *ChemElectroChem* **2019**, 6(21), 5356-5357. DOI: 10.1002/celec.201900945
2. **Guest Editor** of a Special Issue related with Microbial Electrochemical Technology on **Bioresource Technology Reports** (Elsevier). Title Special Issue: "Microbial Electrochemical Technology". **EDITORIAL**. S. Patil, A. Schievano, **C. Santoro**, D. Pant. Preface - Microbial electrochemical technologies. *Bioresource Technology Reports* **2019**, 8, 100336. DOI:10.1016/j.biteb.2019.100336.
1. **Lead Guest Editor** of a Special Issue related with Microbial Fuel Cell and Bioelectrochemical Systems on **Journal of Power Sources** (Elsevier). Title Special Issue: "Microbial Fuel Cell: From Fundamentals to Applications". **EDITORIAL**. **C. Santoro**, C. Arbizzani, B. Erable, I. Ieropoulos. Special Issue: "Microbial fuel cell: From Fundamentals to Applications": Guest Editors note. *Journal of Power Sources* **2017**, 356, 223-224. DOI: 10.1016/j.jpowsour.2017.04.071

## Journal reviewer for 115 journals

**ACS Publications (7):** ACS Applied Electronic Materials, ACS Applied Energy Materials, ACS Sustainable Chemistry & Engineering, Environmental Science and Technology Letters, Environmental Science and Technology, Industrial & Engineering Chemistry Research, Journal of the American Chemical Society.

**ASME Journal Program (1):** Journal of Electrochemical Energy Conversion and Storage.

**Elsevier (53):** Agricultural Water Management, Applied Catalysis B: Environmental, Applied Energy, Applied Surface Science, Biochemical Engineering Journal, Bioelectrochemistry, Bioenergy Biomass, Biofilm, Bioresource Technology, Bioresource Technology Reports, Biosensors Bioelectronics, Biosensors Bioelectronics: X, Biotechnology Advances, Chemical Engineering Journal, Chemical Engineering Journal X, Chemical Engineering Science, Chemosphere, Electrochemistry Communication, Electrochimica Acta, Energy Strategies Reviews, Environmental Technology and Innovation, Enzyme and Microbial Technology, Energy, Fuel, Heliyon, International Journal of Hydrogen Energy, International Journal of Sediment Research, Journal of Alloys and Compounds, Journal of Cleaner Production, Journal of CO<sub>2</sub> Utilization, Journal of Electroanalytical Chemistry, Journal of Energy Storage, Journal of Environmental Sciences, Journal of Hazardous Materials, Journal of Industrial and Engineering Chemistry, Journal of Power Sources, Journal of Water Process Engineering, Materials & Design, Material Science and Engineering B, Material Science of Energy Technologies, Materials Today Energy, Microchemical Journal, Nano Energy, Process Biochemistry, Renewable & Sustainable Energy Reviews, Renewable Energy, Resource, Conservation and Recycling, Science of the Total Environment, Sensor and Actuators A: Physical, Separation and Purification Technology, Surface and Coatings Technology, Sustainable Energy Technologies and Assessments, Trends in Biotechnology.

**Frontiers (2):** Frontiers in Energy Research, Frontiers in Robotics and AI

**IOP Science (1):** Journal of Physics: Energy

**IWA Publishing Group (1):** Water Science and Technology

**MDPI (14):** Applied Microbiology, Applied Sciences, Biosensors, Catalysts, Chemosensors, Electrochem, Energies, Materials, Micromachines, Minerals, Molecules, Processes, Sensors, Water.

**Nature Publishing Group (NPG) (2):** Nature Reviews Microbiology, Scientific Reports.

**OMICS Group (1):** Journal of Microbial & Biochemical Technology.

**Oxford Academic (1):** FEMS Microbiology Letters

**Royal Society of Chemistry (RSC) (7):** Chemical Science, Dalton Transaction, Environmental Science: Water Research & Technology, Journal of Materials Chemistry A, Nanoscale, RSC Advances, Sustainable Energy & Fuels.

**Springer (12):** Applied Microbiology and Biotechnology, Biomass Conversion and Biorefinery, Biotechnology for Biofuel, Biotechnology Letters, Environmental Chemistry Letters, Environmental Monitoring and Assessment, Ionics, Journal of Industrial Microbiology & Biotechnology, Journal of Materials Science, Materials for Renewable and Sustainable Energy, Microbial Cell Factories, SN Applied Sciences.

**Taylor & Francis Online (2):** Environmental Technology, International Journal of Green Energy.

**Wiley (11):** Advanced Materials, Advanced Energy Materials, Advanced Functional Materials, Biofuels, Bioproducts & Biorefining, ChemistrySelect, ChemSusChem, Fuel Cells, International Journal of Energy Research, Journal of Chemical Technology and Biotechnology, The Chemical Record, Water and Environmental Journal.

### Professional memberships

- ✓ **ECS** - Electrochemical Society
- ✓ **ACS** - American Chemical Society
- ✓ **ISE** – International Society of Electrochemistry
- ✓ **BES** – Bioelectrochemical Society
- ✓ **ISMET** – International Society for Microbial Electrochemical Technologies
- ✓ **SCI** – Societa' Italiana di Chimica (Italian Society of Chemistry) – Electrochemistry Division
- ✓ **EFCE** – European Federation of Chemical Engineering - Electrochemical Engineering

### International Societies Responsibilities

- ✓ **Vice-Chair** of Division 2 (Bioelectrochemistry) for the International Society of Electrochemistry (ISE). 2021-2023
- ✓ **Guest member of the Working Party - EFCE** – European Federation of Chemical Engineering - Electrochemical Engineering. Since 2017

## CONFERENCE ORGANIZATION and RESPONSIBILITIES

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### Conference Organizer (5)

5. **Symposium Organizer** for Division 2, 3 and 5 “**Electrochemical Technologies for Sustainability within the Water/Energy Nexus**” at the 71<sup>st</sup> Annual Meeting of the International Society of Electrochemistry. 23-28 October 2022. Xiamen, China. **(IN PROGRESS)**
4. **Organizing Scientific Committee** of the 29<sup>th</sup> Topical Meeting of ISE “**Energy and water: electrochemistry in securing the sustainable society development**”. 18-21 April 2021. Mikulov, Czech Republic. *VIRTUAL CONFERENCE*
3. **Symposium Organizer** for Division 2 “**Advances in Microbial Electrochemistry for Energy Conversion, Biotransformation, Bioremediation and Electroanalysis**” at the 71<sup>st</sup> Annual Meeting of the International Society of Electrochemistry. 3-4 September 2020. Belgrade, Serbia. *VIRTUAL CONFERENCE*
2. **Program co-Chair IEEE Nano 2020** (Institute of Electrical and Electronics Engineers). 29-31 July 2020. *VIRTUAL CONFERENCE*
1. **Symposium Organizer** related to Bioelectrochemical Systems, Enzymatic Fuel Cell and Biosensors: “**Ionics in Biological System and Life Sciences**” at the 21<sup>st</sup> International Conference on Solid State Ionics held in Padua, 18-23 June 2017. ([http://www.chimica.unipd.it/ssi21/List\\_of\\_Symposia\\_III.html](http://www.chimica.unipd.it/ssi21/List_of_Symposia_III.html))

### Workshop Organizer (3)

3. **Workshop Organizer and Co-chair** with Enrico Negro of the “**Italian Virtual Workshop on Fuel Cells**” (IVWFC 2021) sponsored by the Italian Division of Electrochemistry and the International Society of Electrochemistry. 16-19 March 2021. *VIRTUAL CONFERENCE*

2. **Workshop Organizer** with Cristina Trois, Francesca Soavi, Ncholu Manyala of a Satellite ISE Meeting Workshop: **“Waste-Water-Energy as a Resource for a Sustainable Future”**. University of KwaZulu-Natal, Durban, South Africa. 7<sup>th</sup> and 9<sup>th</sup> August **2019**.
1. **Workshop Organizer** and **Co-chair** with Stefania Specchia (chair) related to the platinum group metals-free (PGM-free): **“1<sup>st</sup> Italian Electrochemical Discussion on the latest PGM-free insights for Energy Systems and Fuel Cells”** held at the ENERGY CENTER Politecnico di Torino, Turin, Italy, 8 February **2019**.

### Responsibilities in Conferences

5. **Poster Evaluator** for the 29<sup>th</sup> *Topical Meeting of the International Society of Electrochemistry*. 18-21 April **2021**. Mikulov, Czech Republic. *VIRTUAL CONFERENCE*
4. **Oral Evaluator** of the **“Italian Virtual Workshop on Fuel Cells”** (IVWFC 2021) sponsored by the Italian Division of Electrochemistry and the International Society of Electrochemistry. 16-19 March **2021**. *VIRTUAL CONFERENCE*
3. **Poster Evaluator** for Symposium 6 at the 71<sup>st</sup> *Annual Meeting of the International Society of Electrochemistry*. 3-4 September **2020**. Belgrade, Serbia. *VIRTUAL CONFERENCE*
2. **Award Committee co-Chair IEEE Nano 2020** (Institute of Electrical and Electronics Engineers). 29-31 July **2020**. *VIRTUAL CONFERENCE*
1. **Poster Evaluator** for Symposium 8 at the 70<sup>th</sup> *Annual Meeting of the International Society of Electrochemistry*. 4-9 August **2019**. Durban, South Africa.

### Conference/Workshop Session Chairman (7)

7. **Session Chair** at the 29<sup>th</sup> *Topical Meeting of the International Society of Electrochemistry*. 18-21 April **2021**. Mikulov, Czech Republic. *VIRTUAL CONFERENCE*
6. **Session Chair** during the session related to platinum group metal-free catalysts at the **“Italian Virtual Workshop on Fuel Cells”** (IVWFC 2021) sponsored by the Italian Division of Electrochemistry and the International Society of Electrochemistry. 16-19 March **2021**. *VIRTUAL CONFERENCE*
5. **Session Chair** for Division 2 Symposium **“Advances in Microbial Electrochemistry for Energy Conversion, Biotransformation, Bioremediation and Electroanalysis”** at the 71<sup>st</sup> Annual Meeting of the International Society of Electrochemistry. 3-4 September **2020**. Belgrade, Serbia. *VIRTUAL CONFERENCE*
4. **Chairman IEEE Nano 2020** (Institute of Electrical and Electronics Engineers). 29-31 July **2020**. *VIRTUAL CONFERENCE*
3. **Chairman** in the Symposium dedicated to Electrocatalysis at the 8<sup>th</sup> International Conference on “Fundamentals & Development of Fuel Cells” FDFC2019, 12-14 February **2019**, Nantes, France.
2. **Chairman** with Prof. Stefania Specchia of the Workshop related to the platinum group metals-free (PGM-free): **“1<sup>st</sup> Italian Electrochemical Discussion on the latest PGM-free insights for Energy Systems and Fuel Cells”**, Turin, Italy, 8 February **2019**.
1. **Chairman** in the Symposium “Ionics in Biological System and Life Sciences” during the 21<sup>st</sup> International Conference on Solid State Ionics (SSI-21) held in Padua (Italy), 18-23 June **2017**.

### Conference Scientific Advisory Board (2)

2. The 1<sup>st</sup> International Electronic Conference on Chemical Sensors and Analytical Chemistry (CSAC2021). 1-15 July **2021**. *VIRTUAL CONFERENCE (IN PROGRESS)*
1. European Fuel Cell Forum. Microbial & Enzymatic Electrochemical Reactors, Fuel Cells & Electrolysers (MEEP) Symposium Scientific Advisory Board. Lucerne, Switzerland on the 3–4 July **2019**.

## JOURNAL PUBLICATIONS *(updated on June 16<sup>th</sup>, 2021)*

Published (100) – Reviews (9) – Editorial (3)

First author (42) – Corresponding author (33)

2011 (2); 2012 (5); 2013 (10); 2014 (9); 2015 (9); 2016 (12); 2017 (12); 2018 (11); 2019 (12); 2020 (10); 2021 (8)

*H-index = 42; i10-index = 74; Citations = 4679 (Google Scholar)*

*H-index = 38; i10-index = 71; Citations = 3849 (Scopus)*

*H-index = 37; i10-index = 71; Citations = 3475 (Isi Web of Science)*

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98. E. Berretti, M. Longhi, P. Atanassov, D. Sebastián, C. Lo Vecchio, V. Baglio, A. Serov, A. Marchionni, F. Vizza, **C. Santoro**\*, A. Lavacchi\*. Platinum Group Metal-free (PGM-free) Fe-based (Fe-N-C) Oxygen Reduction Electrocatalysts for Direct Alcohol Fuel Cells. *Current Opinion in Electrochemistry* **2021**. DOI: 10.1016/j.coelec.2021.100756 (IF 2020: 7.271) INVITED REVIEW. \*corresponding author
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94. R. Miera, N. Shaikh, K. Artyushkova, A.-M. Ali, **C. Santoro**, B. Thomson, K. Howe, J.M. Cerrato. Acetaminophen and Caffeine Removal by MnO<sub>x(s)</sub> and GAC Media in Column Experiments. *Environmental Science: Water Research & Technology* **2021**, 7, 134. DOI: 10.1039/D0EW00689K (IF 2020: 4.251)
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91. **C. Santoro**\*, A. Serov, K. Artyushkova, P. Atanassov\*. Platinum Group Metal-free Oxygen Reduction Electrocatalysts Employed in Neutral Electrolytes for Bio-electrochemical Reactors Applications. *Current Opinion in Electrochemistry* **2020**, 23, 106-113. DOI: 10.1016/j.coelec.2020.06.003 (IF 2020: 7.271) \*corresponding author. INVITED REVIEW
90. X.A. Walter, **C. Santoro**, J. Greenman, I. Ieropoulos. Scaling up self-stratifying supercapacitive microbial fuel cell. *International Journal of Hydrogen Energy*. **2020**, 45, 25240-25248. DOI: 10.1016/j.ijhydene.2020.06.070 (IF 2020: 5.816). OPEN ACCESS.
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21. **C. Santoro**, K. Artyushkova, S. Babanova, P. Atanassov, I. Ieropoulos, M. Grattieri, P. Cristiani, S. Trasatti, B. Li, A.J. Schuler. Parameters Characterization and Optmization of Activated Carbon (AC) Cathodes for Microbial Fuel Cell Applications. *Bioresource Technology* **2014**, 163, 54-63. DOI: 10.1016/j.biortech.2014.03.091. (IF 2014: 4.494)
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18. **C. Santoro**, M. Guilizzoni, J. P. Correa Baena, U. Pasaogullari, A. Casalegno, B. Li, S. Babanova, K. Artyushkova, P. Atanassov. The Effect of Carbon Surface Properties on Bacteria Attachment and Start Up Time of Microbial Fuel Cells. *Carbon* **2014**, 67, 128-139. DOI: 10.1016/j.carbon.2013.09.071. (IF 2014: 6.196)
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16. **C. Santoro**, S. Babanova, P. Atanassov, B. Li, I. Ieropoulos, P. Cristiani. High Power Generation by a Membraneless Single Chamber Microbial Fuel Cell (SCMFC) using Enzymatic Bilirubin Oxidase (BOx) Air-Breathing Cathode. *Journal of The Electrochemical Society* **2013**, 160 (10), H720-H726. DOI: 10.1149/2.058310jes. (IF 2013: 2.859)
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14. **C. Santoro\***, A. Stadlhofer, V. Hacker\*, G. Squadrito, U. Schröder, B. Li\*. Activated Carbon Nanofibers (ACNF) as Cathode for Single Chamber Microbial Fuel Cells (SCMFCs). *Journal of Power Sources* **2013**, 243, 499-507. DOI: 10.1016/j.jpowsour.2013.06.061. (IF 2013: 5.211) **\*corresponding author**
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11. **C. Santoro\***, I. Ieropoulos\*, J. Greenman, P. Cristiani, T. Vadas, A. Mackay, B. Li\*. Current Generation in Membraneless Single Chamber Microbial Fuel Cells (MFCs) Treating Urine. *Journal of Power Sources* **2013**, 238, 190-196. DOI: 10.1016/j.jpowsour.2013.03.095. (IF 2013: 5.211) **\*corresponding author**
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7. **C. Santoro**, U. Karra, B. Li, A.G. Agrios, G. Squadrito, P. Cristiani. Effects of Cathodic Platinum Loadings and Organic Substrate Concentrations on the Performance of Single Chamber Microbial Fuel Cells Fed with Raw Wastewater. *ECS Transactions* **2012**, 50(54), 47-54. DOI: 10.1149/05054.0047ecst.
6. **C. Santoro**, A. G. Agrios, B. Li, P. Cristiani. The Correlation of the Anodic and Cathodic Open Circuit Potential (OCP) and Power Generation in Microbial Fuel Cells (MFCs). *ECS Transactions* **2012**, 41(11), 45-53. DOI: 10.1149/1.3687390.
5. **C. Santoro**, P. Cristiani, A. G. Agrios, B. Li. Effects of Anode and Cathode Area on Organic Compounds Removal and Power Generation in Membraneless Microbial Fuel Cell (MFC). *ECS Transactions* **2012**, 41(11), 57-63. DOI: 10.1149/1.3687391.
4. M. Zago, A. Casalegno, **C. Santoro**, R. Marchesi. Water Transport and Flooding in DMFC: Experimental and Modelling Analyses. *Journal of Power Sources* **2012**, 217, 381-391. DOI: 10.1016/j.jpowsour.2012.06.022. (IF **2012**: **4.675**)
3. **C. Santoro**, Y. Lei, B. Li, P. Cristiani. Power Generation from Wastewater using Single Chamber Microbial Fuel Cells (MFCs) with Platinum-free Cathodes and Pre-colonized Anodes. *Biochemical Engineering Journal* **2012**, 62, 8-16. DOI: 10.1016/j.bej.2011.12.006. (IF **2012**: **2.692**)
2. **C. Santoro**, A. Agrios, U. Pasaogullari, B. Li. Effect of Gas Diffusion Layer (GDL) and Micro Porous Layer (MPL) on Cathode Performance in Microbial Fuel Cells (MFCs). *International Journal of Hydrogen Energy* **2011**, 36(20), 13096-13104. DOI: 10.1016/j.ijhydene.2011.07.030. (IF **2011**: **4.054**)
1. A. Casalegno, **C. Santoro**, F. Rinaldi, R. Marchesi. Low Methanol Crossover and High Efficiency Direct Methanol Fuel Cell: The Influence of Diffusion Layer. *Journal of Power Sources* **2011**, 196, 2669-2675. DOI: 10.1016/j.jpowsour.2010.11.050. (IF **2011**: **4.95**)

## BOOK CHAPTER (2)

2. **C. Santoro**, M. Brown, I. Gajda, J. Greenman, T. Obata, M.J. Salar Garcia, P. Theodosiou, A. Walter, J. Winfield, J. You, I. Ieropoulos. Chapter: Microbial fuel cells, concept and applications. **Book: 'Handbook of Cell Biosensors'**. Edited by Gérald Thouand. Publisher: Springer Nature.
1. **C. Santoro**, D. Pankratov, I. Ieropoulos, F. Soavi. Chapter 10: Supercapacitors in Bioelectrochemical Systems. **Book: 'Bioelectrochemistry: Design and Applications of Biomaterials'**. Publisher: De Gruyter. Edited by Serge Cosnier. ISBN 978-3-11-056898-1. DOI : 10.1515/9783110570526-010

## CONFERENCE PROCEEDINGS (1)

1. **C. Santoro**, B. Li, P. Cristiani. Novel Platinum (PT)-Free Cathodes for Microbial Fuel Cells (MFCs) Treating Wastewater. *Proceedings of the Water Environment Federation, WEFTEC 2011*, Session 71-80, pp.4989-4994. DOI: 10.2175/193864711802765354.

## CONFERENCE/WORKSHOP PARTICIPATION (39)

39. 72<sup>nd</sup> Annual Meeting of the International Society of Electrochemistry. 29 August - 3 September **2021**. Jeju Island, Korea. *HYBRID CONFERENCE (TO BE DONE)*
38. XXVI International Symposium on Bioelectrochemistry and Bioenergetics, 9-13 May **2021**, Cluj-Napoca, Romania. *VIRTUAL CONFERENCE*
37. 29<sup>th</sup> ISE Topical Meeting of the International Society of Electrochemistry, Energy and water: electrochemistry in securing the sustainable society development. 18 - 21 April **2021**, Mikulov, Czech Republic. *VIRTUAL CONFERENCE*
36. Italian Virtual Workshop on Fuel Cells (IVWFC 2021). 16-19 March **2021**. *VIRTUAL CONFERENCE*
35. 71<sup>st</sup> Annual Meeting of the International Society of Electrochemistry. 3-4 September **2020**. *VIRTUAL CONFERENCE*.

34. *20<sup>th</sup> IEEE International Conference on Nanotechnology (IEEE-NANO 2020)*. 29-31 July **2020**. VIRTUAL CONFERENCE.
33. *Giornata dell'elettrochimica Italiana (GEI 2019)*, 8-12 September **2019**, Padua, Italy.
32. Satellite ISE Meeting Workshop: "Waste-Water-Energy as a Resource for a Sustainable Future". University of KwaZulu-Natal, Durban, South Africa. 7<sup>th</sup> and 9<sup>th</sup> August **2019**.
31. *70<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 4-9 August **2019**. Durban, South Africa.
30. *8<sup>th</sup> International Conference on "Fundamentals & Development of Fuel Cells" FDFC2019*, 12-14 February **2019**, Nantes, France.
29. *1<sup>st</sup> Italian Electrochemical Discussion on the latest PGM-free insights for Energy Systems and Fuel Cells*, 8 February **2019**, Politecnico di Torino, Turin, Italy.
28. *ECS and SMEQ Joint International Meeting*, September 30 – October 4 **2018**, Cancun, Mexico
27. *69<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 2-7 September **2018**. Bologna, Italy.
26. *International Conference on "Water, Environment and Climate Change: Knowledge Sharing and Partnership"*, 10-12 April **2018**, Kathmandu, Nepal.
25. *7<sup>th</sup> European Fuel Cell Conference and Exhibition*, Piero Lunghi Conference, 12-15 December **2017**, Naples, Italy.
24. *68<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 27 August – 1 September **2017**. Providence-RI, USA
23. *XXIV International Symposium on Bioelectrochemistry and Bioenergetics*, 3-7 July **2017**, Lyon, France
22. *21<sup>st</sup> International Conference of Solid State Ionics (SSI-21)*, 18-23 June **2017**, Padua, Italy.
21. *11<sup>th</sup> European Symposium on Electrochemical Engineering*, 4-8 June **2017**, Prague, Czech Republic
20. *229<sup>th</sup> Electrochemical Society Meeting*, 29 May – 3 June **2016**. San Diego-CA USA.
19. *PacificChem 2015*, 15-20 December **2015**, Honolulu-HI USA.
18. *5<sup>th</sup> International Society of Microbial Electrochemical Technology Conference (ISMET)*, 1-4 October **2015**, Tempe-AZ, USA.
17. *227<sup>th</sup> Electrochemical Society Meeting*, 24-28 May **2015**. Chicago-IL, USA.
16. *226<sup>th</sup> Electrochemical Society Meeting*, 5-10 October **2014**. Cancun, Mexico.
15. *2014 Surface Analysis Meeting. 36<sup>th</sup> Symposium on Applied Surface Analysis*, 2-5 June **2014**. Albuquerque-NM USA.
14. *225<sup>th</sup> Electrochemical Society Meeting*, 11-16 May **2014**. Orlando-FL USA.
13. *5<sup>th</sup> European Fuel Cell Conference and Exhibition*, Piero Lunghi Conference, 14-16 December **2013**, Rome Italy.
12. *North East Water Environment Association (NEWEA) Meeting*, April 3, **2013**, Worcester-MA, USA.
11. *Association of Environmental Engineering and Science Professors (AEESP)*, February 27, **2013**, UMass, Amherst-MA, USA.
10. *222<sup>th</sup> Electrochemical Society Meeting*, 7-12 October, **2012**. Honolulu-HI USA.
9. *European-International Society for Microbial Electrochemistry and Technology (EU-ISMET)*, September 26-28 **2012**, Ghent Belgium.
8. *Euro-Mediterranean Hydrogen Technology Conference (EMHyTeC) 2012*, September 11-14 **2012**, Hammamet-Tunisia.
7. *5<sup>th</sup> International Summer School on Advanced studies of Polymer Electrolyte Fuel Cells*, Graz University of Technology, September 3-7 **2012**, Graz, Austria.
6. *21<sup>st</sup> Connecticut Microelectronics and Optoelectronics Consortium (CMCO)*, April 11 **2012**, Storrs-CT, USA.
5. *243<sup>rd</sup> American Chemical Society (ACS) National Meeting*, March 25-29 **2012**, San Diego-CA, USA.
4. *4<sup>th</sup> European Fuel Cell Conferences and Exhibition*, Piero Lunghi Conference, 14-16 December **2011**, Rome Italy
3. *220<sup>th</sup> Electrochemical Society Meeting*, 9-14 October **2011**. Boston-MA USA.
2. *3<sup>rd</sup> International Microbial Fuel Cell Conference (ISMET)*, 6-8 June **2011**, Leeuwarden, The Netherlands.
1. *Giornata dell'elettrochimica Italiana (GEI-ERA)*, 15-20 June **2008**, Genoa, Italy

## CONFERENCE – ORAL PRESENTATION (38) – as presenter

7 Invited, 1 Keynote and 2 Plenary Lecture

38. **C. Santoro\***. **Microbial Electrochemical Systems: Improvements through Cathode Electrocatalysis and Supercapacitive Mode Operations**. *72<sup>nd</sup> Annual Meeting of the International Society of Electrochemistry*. 29 August - 3 September **2021**. Jeju Island, Korea. *HYBRID CONFERENCE (Keynote Award Lecture)*
37. **C. Santoro\***, K. Artyushkova, P. Atanassov, S. Babanova, A. Bergel, O. Bretschger, R.K. Brown, K. Carpenter, A. Colombo, R. Cortese, P. Cristiani, B. Erable, F. Harnisch, Mounika Kodali, S. Phadke, S. Riedl, L.F.M. Rosa, U. Schröder. How comparable are microbial electrochemical systems around the globe? An electrochemical and microbiological cross-laboratory study. *XXVI International Symposium on Bioelectrochemistry and Bioenergetics*, 9-13 May **2021**, Cluj-Napoca, Romania. *VIRTUAL CONFERENCE*
36. **C. Santoro\***, S. Babanova, P. Cristiani, K. Artyushkova, P. Atanassov, A. Bergel, O. Bretschger, R.K. Brown, K. Carpenter, A. Colombo, R. Cortese, B. Erable, F. Harnisch, M. Kodali, S. Phadke, S. Riedl, L.F.M. Rosa, U. Schröder. Cross-Laboratory test on operating microbial fuel cells: Electrochemical and Microbiological analysis. *29<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 18-21 April **2021**, Mikulov, Czech Republic. *VIRTUAL CONFERENCE*.
35. **C. Santoro\***, S. Rojas-Carbonell, A. Serov, K. Artyushkova, P. Atanassov. Correlations between synthesis step and performance of Fe-based PGM-free catalysts in entire pH spectrum. *Giornata dell'elettrochimica Italiana – GEI 2019 (Italian Electrochemical Days)*, 8-12 September **2019**, Padua, Italy. *(INVITED presentation)*
34. **C. Santoro\***. Bioelectrochemical Systems: Why they are interesting. *Satellite ISE Meeting Workshop: "Waste-Water-Energy as a Resource for a Sustainable Future"*. University of KwaZulu-Natal, Durban, South Africa. 7<sup>th</sup> and 9<sup>th</sup> August **2019**. *(INVITED presentation)*
33. I. Gajda, O. Obata, J. Greenman, I. Ieropoulos. Electroosmotic production of clear caustic filtrate from human urine in ceramic Microbial Fuel Cells. *70<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 4-9 August **2019**. Durban, South Africa. Presentation on behalf of I. Gajda.
32. **C. Santoro\***, X.A. Walter, J. Greenman, F. Soavi, I. Ieropoulos. Self-powered supercapacitive membraneless microbial fuel cell with air-breathing configuration, *70<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 4-9 August **2019**. Durban, South Africa. *(INVITED presentation)*
31. **C. Santoro\***, J. Greenman, I. Ieropoulos. Microbial fuel cell as interesting category of fuel cells capable of operating with a multitude of organic molecules. *8<sup>th</sup> International Conference on "Fundamentals & Development of Fuel Cells" FDFC2019*, 12-14 February 2019, Nantes, France. *(INVITED presentation)*
30. **C. Santoro\***. **Closure talk**. *1<sup>st</sup> Italian Electrochemical Discussion on the latest PGM-free insights for Energy Systems and Fuel Cells*, 8 February **2019**, Politecnico di Torino, Turin, Italy. *(INVITED presentation)*
29. I. Gajda, J. Greenman, **C. Santoro\***, A. Serov, P. Atanassov, I. Ieropoulos. Small Ceramic Microbial Fuel Cell as a Trigenerative System for Electricity, Organics Degradation and Urine Filtration. *ECS and SMEQ Joint International Meeting*, September 30 – October 4 **2018**, Cancun, Mexico.
28. **C. Santoro\***, X.A. Walter, J. Greenman, F. Soavi, I. Ieropoulos. Self-powered and Self-stratified Micro Supercapacitor Operating with Human Urine. *69<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 2-7 September **2018**. Bologna, Italy.
27. I. Ieropoulos, O. Obata, I. Gajda, A. Walter, **C. Santoro\***, J. Greenman. URINE-TRICITY: Microbial Fuel Cells as a Platform Technology for Urine Treatment, Power Generation, Catholyte Production and Pathogen Killing. *International Conference on "Water, Environment and Climate Change: Knowledge Sharing and Partnership"*, 10-12 April **2018**, Kathmandu, Nepal.
26. I. Merino-Jimenez, **C. Santoro\***, P. Atanassov, J. Greenman, I. Ieropoulos. Microbial Desalination Cell Cascade. *7<sup>th</sup> European Fuel Cell Conference and Exhibition, Piero Lunghi Conference*, 12-15 December **2017**, Naples, Italy.

25. **C. Santoro\***, F. Soavi, M. Kodali, A. Serov, P. Atanassov. Self-charging Microbial Desalination Cells: New Class of Power Generating and Water Destination Devices, *68<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 27 August – 1 September **2017**. Providence-RI, USA.
24. **C. Santoro\***, A. Serov, F. Soavi, P. Atanassov, Utilization of Supercapacitive Features in Bioelectrochemical Systems, *XXIV International Symposium on Bioelectrochemistry and Bioenergetics*, 3-7 July **2017**, Lyon, France (**INVITED presentation**)
23. **C. Santoro\***, M. Kodali, F. Benito Abad, A. Serov, F. Soavi, P. Atanassov, Supercapacitive Microbial Desalination Cell, *21<sup>st</sup> International Conference of Solid State Ionics (SSI-21)*, 18-23 June **2017**, Padua, Italy.
22. **C. Santoro\***, F. Soavi, C. Arbizzani, A. Serov, P. Atanassov, Integrated Microbial Fuel Cell - Supercapacitor Systems. *11<sup>th</sup> European Symposium on Electrochemical Engineering*, 4-8 June **2017**, Prague, Czech Republic (**PLENARY Award Lecture**)
21. **C. Santoro\***, A. Serov, S. Rojas-Carbonell, L. Stariha, J. Gordon, K. Artyushkova, P. Atanassov. Novel Fe-N-C Catalysts from Organic Precursors for Neutral Media and Microbial Fuel Cell Application. *229<sup>th</sup> Electrochemical Society Meeting*, 29 May – 3 June **2016**. San Diego-CA USA.
20. **C. Santoro\***, F. Soavi, A. Serov, C. Arbizzani, P. Atanassov. Self-Powered Supercapacitive Microbial Fuel Cell. *229<sup>th</sup> Electrochemical Society Meeting*, 29 May – 3 June **2016**. San Diego-CA USA.
19. **C. Santoro\***, S. Babanova, K. Artyushkova, A. Serov, P. Atanassov. Enzymatic, Microbial or Abiotic Cathodic Catalysis in Bioelectrochemical Systems (BESs). *PacificChem 2015*, 15-20 December **2015**, Honolulu-HI USA.
18. **C. Santoro\***, S. Babanova, A. Serov, K. Artyushkova, P. Atanassov. Designing Cathodes for Bioelectrochemical Systems: Enzymatic vs. Non-Platinum Catalysis for Oxygen Reduction. *5<sup>th</sup> International Microbial Fuel Cell Conference (ISMET)*, 1-4 October **2015**, Tempe-AZ, USA.
17. **C. Santoro\***, S. Babanova, P. Atanassov. From Chemical Fuel Cells to Biological Fuel Cells: Challenges and Directions. *227<sup>th</sup> Electrochemical Society Meeting*, 24-28 May **2015**. Chicago-IL, USA. (**INVITED presentation**)
16. **C. Santoro\***, S. Babanova, P. Atanassov, S. Trasatti, P. Cristiani. Research and Study of Low Cost and Reliable Materials for Anode and Cathode Electrodes in Bioelectrochemical Systems (BESs): Scale Up of Materials for Real Application. *226<sup>th</sup> Electrochemical Society Meeting*, 5-10 October **2014**. Cancun, Mexico.
15. **C. Santoro\***, S. Babanova, K. Artyushkova, J.A. Cornejo, L. Ista, A.J. Schuler, P. Atanassov. Surface Chemistry Enhanced Microbial Bioelectrocatalysis. *226<sup>th</sup> Electrochemical Society Meeting*, 5-10 October, **2014**. Cancun, Mexico.
14. **C. Santoro\***, K. Artyushkova, S. Babanova, A. Schuler, P. Atanassov. Surface-to-property Characterization of Activated Carbon (AC) Cathodes in Biofuel Cell. *2014 Surface Analysis Meeting. 36<sup>th</sup> Symposium on Applied Surface Analysis*, 2-5 June **2014**. Albuquerque-NM USA.
13. **C. Santoro\***, S. Babanova, P. Atanassov. Effect of Contaminants and Bacteria Presence on Bilirubin Oxidase Based Cathode Operation. *225<sup>th</sup> Electrochemical Society Meeting*, 11-16 May **2014**. Orlando-FL USA.
12. **C. Santoro\***, S. Babanova, K. Artyushkova, M. Guilizzoni, J. P. Correa Baena, U. Pasaogullari, A. Casalegno, B. Li, P. Atanassov, Materials Characterization Approaches for Optimization of Microbial Fuel Cell Electrodes. *225<sup>th</sup> Electrochemical Society Meeting*, 11-16 May **2014**. Orlando-FL USA.
11. **C. Santoro\***, S. Babanova, K. Artyushkova, P. Atanassov, B. Li, I. Ieropoulos, J. Greenman, P. Cristiani, S. Trasatti. Optimized Activated Carbon Cathode in Membraneless Single Chamber Microbial Fuel Cell Treating Acetate. *4<sup>th</sup> European Fuel Cell Conference and Exhibition*, Piero Lunghi Conference, 14-16 December **2013**, Rome Italy
10. **C. Santoro\***, M. Cremins, A. Mackay, U. Pasaogullari, M. Guilizzoni, A. Casalegno, B. Li. Evolution of Cathodic Characteristics (Water and Oxygen Transport) in Microbial Fuel Cell (MFC). *222<sup>th</sup> Electrochemical Society Meeting*, 7-12 October, **2012**. Honolulu-HI USA.

9. **C. Santoro\***, I. Ieropoulos, J. Greenman, P. Cristiani, T. Vadas, A. Mackay, B. Li. Single Chamber Microbial Fuel Cells (SCMFCs) Treating Human Urine. *European-International Society for Microbial Electrochemistry and Technology (EU-ISMET)*, September 26-28 **2012**, Ghent Belgium.
8. **C. Santoro\***, I. Ieropoulos, J. Greenman, P. Cristiani, R.J. Raggio, S.E. Scott, B. Li. Electrochemical Analysis of a Single Chamber Microbial Fuel Cell (SCMFC) Fed with Human Urine. *Euro-Mediterranean Hydrogen Technology Conference (EMHyTeC) 2012*, September 11-14 **2012**, Hammamet-Tunisia.
7. **C. Santoro\***, B. Li, Y. Lei, P. Cristiani, G. Squadrito. Bio-cathode as Alternative Cheap Solution at the Platinum-based Cathode in Microbial Fuel Cell Systems. *21<sup>st</sup> Connecticut Microelectronics and Optoelectronics Consortium (CMCO)*, April 11 **2012**, Storrs-CT, USA.
6. **C. Santoro\***, B. Li, P. Cristiani. Performance of Micro-porous Layer (MPL) Graphite Cathode in Single Chamber Microbial Fuel Cell. *243<sup>rd</sup> American Chemical Society (ACS) National Meeting*, March 25-29 **2012**, San Diego-CA, USA.
5. **C. Santoro\***, B. Li, P. Cristiani, G. Squadrito. Power Generation of Microbial Fuel Cells (MFCs) with Low Cathodic Platinum Loading. *4<sup>th</sup> European Fuel Cell Conference and Exhibition, Piero Lunghi Conference*, 14-16 December 2011, Rome Italy.
4. **C. Santoro\***, A. Agrios, B. Li, P. Cristiani. The Correlation of the Anodic and Cathodic Open Circuit Potential (OCP) and Power Generation in Microbial Fuel Cells (MFCs). *220<sup>th</sup> Electrochemical Society Meeting*, 9-14 October 2011. Boston-MA USA.
3. **C. Santoro\***, P. Cristiani, A. Agrios, B. Li. Effects of Anode and Cathode Areas on Organic Compounds Removal and Power Generation in Membraneless Microbial Fuel Cell (MFC). *220<sup>th</sup> Electrochemical Society Meeting*, 9-14 October 2011. Boston-MA USA
2. U. Karra, **C. Santoro\***, S. Manickam, J. McCutcheon, B. Li. Activated Carbon Nanofiber as a Novel Anode Material to Enhance the Performance of Microbial Fuel Cell (MFC). *3<sup>rd</sup> International Microbial Fuel Cell Conference (ISMET)*, 6-8 June 2011, Leeuwarden, The Netherlands.
1. **C. Santoro\***, A. Agrios, B. Li, P. Cristiani. Effect of Cathode Structures on Water Diffusion, Power Generation and Wastewater Treatment in Microbial Fuel Cell. *3<sup>rd</sup> International Microbial Fuel Cell Conference (ISMET)*, 6-8 June 2011, Leeuwarden, The Netherlands.

## CONFERENCE – ORAL PRESENTATION (28) – as co-author \*presenter 2 invited

28. F. Poli, **C. Santoro**, N. Manyala, F. Soavi. Sustainable strategies to improve MFC power output by green supercapacitors and supercapacitive components. XXVII Congresso Nazionale della Societa' Chimica Italiana. 14-23 September **2021**. VIRTUAL CONFERENCE.
27. F. Soavi\*, F. Poli, **C. Santoro**, N. Manyala. Valorization of Biodigester Wastes in Supercapacitors and Microbial Fuel Cells. *29<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 18-21 April **2021**, Mikulov, Czech Republic. VIRTUAL CONFERENCE. **(INVITED presentation)**
26. C. Ferrara, A. S. Cattaneo, S. Bonizzoni, **C. Santoro**, P. Mustarelli\*. Operando electrochemical NMR microscopy of polymer fuel cells. *Italian Virtual Workshop on Fuel Cells (IVWFC 2021)*. 16-19 March **2021**. VIRTUAL CONFERENCE **(INVITED presentation)**
25. V.C.A. Ficca\*, **C. Santoro**, P. Atanasov, B. Mecheri. Fingerprint of Fe-N-C catalysts poisoning for ORR application in microbial fuel cells. *71<sup>st</sup> Annual Meeting of the International Society of Electrochemistry*. 2-3 September **2020**. VIRTUAL CONFERENCE.
24. M. Mashkour\*, F. Poli, M. Rahimnejad, M. Mashkour, **C. Santoro**, F. Soavi. Capacitive Performance of Polyaniline Modified Conductive Bacterial Cellulose as Anode in Supercapacitive Microbial Fuel Cell. *71<sup>st</sup> Annual Meeting of the International Society of Electrochemistry*. 2-3 September **2020**. VIRTUAL CONFERENCE.
23. F. Soavi\*, F. Poli, F.E. Spina, A. Brilloni, M. Mashkour, M.S. El Halimi, M.L. Focarete, C. Santato, **C. Santoro**, B.K. Mutuma, A. Bubu, N. Manyala. Supercapacitors within the Water-Energy Nexus. *2019 MRS Fall Meeting and Exhibit*, 1-6 December **2019**, Boston-MA USA.

22. V.C.A. Ficca\*, B. Mecheri, **C. Santoro**, A. D'Epifanio, S. Licoccia, P. Atanassov. Insights into oxygen reducing activity and poisoning tolerance of platinum-group-metal-free catalysts. *Giornata dell'elettrochimica Italiana – GEI 2019 (Italian Electrochemical Days)*, 8-12 September **2019**, Padua, Italy.
21. X.A Walter\*, **C. Santoro**, J. Greenman, I.A. Ieropoulos. Scalability of and stacking of self-stratifying microbial fuel cells treating urine. European Fuel Cell Forum (EFCF 2019). Low-Temperature Fuel Cells, Electrolysers & H<sub>2</sub> Processing Fundamentals and Engineering Design. 3<sup>rd</sup> MEEP Symposium 2019: Microbial & Enzymatic Electrochemical Reactors. Fuel Cells & Electrolysers Systems. 2-5 July **2019**, Lucerne, Switzerland.
20. V.C.A. Ficca\*, B. Mecheri, **C. Santoro**, A. D'Epifanio, S. Licoccia, P. Atanassov. Poisoning tolerance of platinum-group-metal-free catalysts for the oxygen reduction reaction. *VIII Workshop AICInG (Associazione Italiana di Chimica per l'Ingegneria) "Advanced Materials for sustainable Energy, Environment and Sensing Application"*. 27-29 June **2019**, Lipari, Italy.
19. F. Soavi\*, J. Seri, A. Terella, F. De Giorgio, F. Poli, A. Brilloni, R.A. Albis Vasquez, D. Fabiani, M.L. Focarete, C. Santato, **C. Santoro**, N. Manyala. Bio-Inspired Supercapacitors. *2018 MRS Fall Meeting and Exhibit*, 25-30 November **2018**, Boston-MA USA.
18. F. Soavi\*, F. Poli, A. Brilloni, A. Terella, J. Seri, F. De Giorgio, **C. Santoro**, K. Malaye, D. Momodu, B. Mutuma, N. Manyala. Inorganic Oxide-based Supercapacitors for Energy and Water Sustainability. *XLVI Congresso Nazionale di Chimica Inorganica*, 10-13 September **2018**, Bologna, Italy.
17. B. Mecheri\*, R. Gokhale, **C. Santoro**, M. Aysla Costa de Oliveira, A. D'Epifanio, S. Licoccia, A. Serov, K. Artyushkova, P. Atanassov. Novel Iron Based Catalyst using Aminobenzimidazole and Benzimidazole as Organic Precursor for Microbial Fuel Cell Applications. *7<sup>th</sup> European Fuel Cell Conference and Exhibition, Piero Lunghi Conference*, 12-15 December **2017**, Naples, Italy.
16. K. Artyushkova\*, M. Workman, **C. Santoro**, I. Gonzales, A. Serov, P. Atanassov. Interplay Between Surface and Morphology of Electrocatalysts. *25<sup>th</sup> North American Catalysis Society Meeting*. 4-9 June, **2017**. Denver-CO USA.
15. K. Artyushkova\*, J.A. Cornejo, **C. Santoro**, D. Roizman, E. Marsili, P. Atanassov. Relationship between Surface Chemistry, Biofilm Structure and Electron Transfer in Shewanella Anodes. *230<sup>th</sup> Electrochemical Society Meeting*, 2-7 October, **2016**. Honolulu-HI USA.
14. F. Soavi\*, C. Arbizzani, **C. Santoro**, A. Serov, P. Atanassov. Novel concepts of bioelectrochemical energy devices. *GEI 2016 – Giornate dell'elettrochimica italiana (Italian Electrochemical Days)*. 11-14 September, **2016**, Gargnano (BS), Italy.
13. S. Rojas-Carbonell\*, S. Babanova, A. Serov, K. Artyushkova, M.J. Workman, **C. Santoro**, Y. Ulyanova, S. Singhal, P. Atanassov. Integration of Non-Platinum Metal Group Catalysts with Bilirubin Oxidase into a Hybrid Material for Oxygen Reduction Reaction: Interplay of Chemistry and Morphology. *229<sup>th</sup> Electrochemical Society Meeting*, 29 May – 3 June, **2016**. San Diego-CA USA.
12. A. Serov\*, J.P. Gordon, **C. Santoro**, M. Padilla, K. Artyushkova, O.A. Baturina, S. Kazemi, T. Nickchi, P. Atanassov. CO<sub>2</sub> Electroreduction on Different Mono- and Bi-metallic Electrocatalysts: Synthesis, Characterization and Electrode Design. *229<sup>th</sup> Electrochemical Society Meeting*, 29 May – 3 June, **2016**. San Diego-CA USA.
11. J.A. Cornejo\*, K. Artyushkova, **C. Santoro**, S. Babanova, L. Ista, A.J. Schuler, P. Atanassov. Surface Chemistry Enhanced Microbial Electrodes: Biofilm Modeling and Characterization. *249<sup>th</sup> American Chemical Society (ACS) National Meeting*, March 22-26, **2015**, Denver-CO, USA.
10. K. Artyushkova\*, **C. Santoro**, S. Babanova, J.A. Cornejo, L. Ista, A.J. Schuler, P. Atanassov. Surface Chemistry Enhanced Microbial Bioelectrocatalysis. *AVS (American Vacuum Society) 61<sup>st</sup> International Symposium and Exhibition (AVS-61)*. 9-14 November, **2014**. Baltimore-MD, USA.
9. K. Artyushkova\*, S. Babanova, **C. Santoro**, P. Atanassov. Interplay between Surface and Morphology: Bio-nano-composites for Energy Harvesting. *2014 Surface Analysis Meeting. 36<sup>th</sup> Symposium on Applied Surface Analysis*, 2-5 June **2014**. Albuquerque-NM USA.

8. J. A. Cornejo\*, **C. Santoro**, C. N. Villarrubia, K. Artyushkova, S. Babanova, L. K. Ista, P. Atanassov. Surface Modification of Carbon Felt Electrodes for Enhanced Biofilm Formation in Microbial Fuel Cells. *225<sup>th</sup> Electrochemical Society Meeting*, 11-16 May, **2014**. Orlando-FL USA.
7. M. Grattieri\*, S. Babanova, **C. Santoro**, E. Guerrini, P. Cristiani, S. P. Trasatti, P. Atanassov. Enzymatic Oxygen Micro-Probe for Analysis of Microbial Fuel Cells. *225<sup>th</sup> Electrochemical Society Meeting*, 11-16 May, **2014**. Orlando-FL USA.
6. K. Artyushkova\*, S. Babanova, **C. Santoro**, P. Atanassov. Interplay between Surface and Morphology: Bio-Nano-Composites for Energy Harvesting. *225<sup>th</sup> Electrochemical Society Meeting*, 11-16 May, **2014**. Orlando-FL USA.
5. J. You\*, J. Greenman, C. Melhuish, **C. Santoro**, P. Cristiani, B. Li, I. Ieropolous. MPL Based Anode for Improved Performances in Microbial Fuel Cells (MFCs). *5<sup>th</sup> European Fuel Cell Conference and Exhibition*, Piero Lunghi Conference, 14-16 December **2013**, Rome Italy.
4. **C. Santoro**, A. Stadlhofer, V. Hacker, G. Squadrito\*, U. Schröder, B. Li. Activated Carbon Nanofibers as Promising Low Cost Cathode for Membraneless Single Chamber Microbial Fuel Cells (SCMFCs). *IMPRES 2013 – International Symposium on Innovative Materials for Processes in Energy Systems*, September 4-6 **2013**, Fukuoka, Japan.
3. P. Cristiani\*, M.L. Carvalho, **C. Santoro**, B. Li, E. Guerrini, S. Trasatti. Performance of Membraneless MFCs with Graphite and Stainless Steel Electrodes. *Euro-Mediterranean Hydrogen Technology Conference (EMHyTeC) 2012*, September 11-14, **2012**, Hammamet-Tunisia
2. G. Papaharalabos\*, J. Greenman, C. Melhuish, P. Cristiani, **C. Santoro**, B. Li, I. Ieropoulos. Increased Power Output from Micro Porous Layer (MPL) Cathode Microbial Fuel Cells (MFC). *Euro-Mediterranean Hydrogen Technology Conference (EMHyTeC) 2012*, September 11-14, **2012**, Hammamet-Tunisia.
1. P. Cristiani\*, M. Carvalho, **C. Santoro**, B. Li. Long Time Trends of Power Generation in Membraneless MFCs Set With Different Anode/Cathode Materials (Graphite or Stainless Steel). *3<sup>rd</sup> International Microbial Fuel Cell Conference (ISMET)*, 6-8 June **2011**, Leeuwarden, The Netherlands.

## CONFERENCE – POSTER PRESENTATION (19) - as presenter

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19. **C. Santoro**\*, A. Serov, K. Artyushkova, M. Kodali, S. Rojas-Carbonell, P. Atanassov. Synthesis Steps affect the surface chemistry and the performance of Fe-based cathode catalysts for microbial fuel cells applications. *1<sup>st</sup> Virtual International Society for Microbial Electrochemistry and Technology (ISMET) Meeting*. 7-9 October **2020**. VIRTUAL CONFERENCE.
18. **C. Santoro**\*, S. Rojas-Carbonell, R. Gokhale, M. Kodali, A. Serov, K. Artyushkova, P. Atanassov. Effect of the synthesis route of platinum group metal-free catalysts for oxygen reduction reaction on microbial fuel cell performance. *71<sup>st</sup> Annual Meeting of the International Society of Electrochemistry*. 2-3 September **2020**. VIRTUAL CONFERENCE.
17. F. Poli, J. Seri, N. Manyala, **C. Santoro**\*, F. Soavi. Improving power performance of microbial fuel cells by the use of supercapacitors. *70<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 4-9 August **2019**. Durban, South Africa.
16. **C. Santoro**\*, M. Kodali, S. Kabir, A. Serov, K. Artyushkova, P. Atanassov. Introduction of Nano-Composite Cathode Catalyst for Enhanced Microbial Fuel Cell Performance. *69<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 2-7 September **2018**. Bologna, Italy.
15. **C. Santoro**\*, C. Flores-Cadengo, F. Soavi, M. Kodali, A. Serov, I. Merino-Jimenez, I. Ieropoulos, P. Atanassov. Liter-volume Supercapacitive Microbial Fuel Cell, *68<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 27 August – 1 September **2017**. Providence-RI, USA
14. **C. Santoro**\*, A. Serov, P. Atanassov. Efficient Microbial Bio-Electrochemical System. *Transformative Technologies 5 Year Portfolio Review*. Bill and Melinda Gates Foundation. 17-22 July, **2016**. Seattle-WA USA.

13. M. Santini, M. Guilizzoni, M. Lorenzi, P. Atanassov, E. Marsili, S. Fest-Santini, P. Cristiani, **C. Santoro\***. Micro Computed Tomography as Powerful Tool for Analyzing Post Mortem Biofilm and Carbonate on Operated Cathode in Single Chamber Microbial Fuel Cell. *229<sup>th</sup> Electrochemical Society Meeting*, 29 May – 3 June, **2016**. San Diego-CA USA.
12. **C. Santoro\***, C.W. Narvaez Villarubia, S. Stariha, S. Babanova, M. Grattieri, A. Serov, and P. Atanassov. Double Chamber MFC with Non-PGM F-C-N Cathode Catalyst. *225<sup>th</sup> Electrochemical Society Meeting*, 11-16 May, **2014**. Orlando-FL USA.
11. **C. Santoro\***, S. Babanova, B. Li, P. Cristiani, I. Ieropolous, P. Atanassov. Membraneless Hybrid Biofuel Cells: Integrating Microbial Anode and Enzymatic Cathode. *225<sup>th</sup> Electrochemical Society Meeting*, 11-16 May, **2014**. Orlando-FL USA.
10. **C. Santoro\***, I. Ieropoulos, J. Greenman, P. Cristiani, B. Li. Self-sustainable Urine Waste Treatment in Microbial Fuel Cells (SCMFCs). *North East Water Environment Association (NEWEA) Meeting*, April 3, **2013**, Worcester-MA, USA.
9. **C. Santoro\***, I. Ieropoulos, J. Greenman, P. Cristiani, T. Vadas, A. Mackay, B. Li. Power Generation and Nutrients Recovery/Removal in Single Chamber Microbial Fuel Cells (SCMFCs) Fed with Human Urine. *Association of Environmental Engineering and Science Professors (AEESP)*, February 27, **2013**, UMass, Amherst-MA, USA.
8. **C. Santoro\***, B. Li, U. Karra, A. G. Agrios, G. Squadrito, P. Cristiani. Effects of Cathodic Platinum Loadings and Organic Substrate Concentrations on the Performance of Single Chamber Microbial Fuel Cells Fed with Raw Wastewater. *222<sup>th</sup> Electrochemical Society Meeting*, 7-12 October, **2012**. Honolulu-HA USA.
7. **C. Santoro\***, M. Cremins, A. Mackay, U. Pasaogullari, M. Guilizzoni, A. Casalegno, B. Li. Evolution of Cathode Surface Hydrophobicity in Microbial Fuel Cell using Sessile Drop Technique. *222<sup>th</sup> Electrochemical Society Meeting*, 7-12 October, **2012**. Honolulu-HA USA.
6. **C. Santoro\***, P. Cristiani, G. Squadrito, Y. Lei, A.G. Agrios, B. Li. Coulombic Efficiency under Different Operative Conditions in Microbial Fuel Cells. *Euro-Mediterranean Hydrogen Technology Conference (EMHyTeC) 2012*, September 11-14, **2012**, Hammamet-Tunisia.
5. **C. Santoro\***, A. Stadlhofer, V. Hacker, G. Squadrito, B. Li. Novel Activated Carbon Nanofibers for Microbial Fuel Cells (MFCs) Systems. *5<sup>th</sup> International Summer School on Advanced studies of Polymer Electrolyte Fuel Cells*, Graz University of Technology, September 3-7 **2012**, Graz, Austria.
4. **C. Santoro\***, A. Agrios, U. Pasaogullari, B. Li. Effect of Cathode Structures on Water Diffusion, Power Generation and Wastewater Treatment in Microbial Fuel Cell. *21<sup>st</sup> Connecticut Microelectronics and optoelectronics consortium (CMCO)*, April 11, **2012**, Storrs-CT, USA.
3. **C. Santoro\***, V. Martinez, M. Cremins, P. Cristiani, A. G. Agrios, B. Li. Electrode Geometric Area: Effect on Power Generation, Organic Compounds Removal and Coulombic Efficiency in Single Chamber Microbial Fuel Cell (SCMFC). *21<sup>st</sup> Connecticut Microelectronics and optoelectronics consortium (CMCO)*, April 11, **2012**, Storrs-CT, USA.
2. **C. Santoro\***, B. Li, P. Cristiani, G. Squadrito. Catalyses of Power Generation in Single Chamber Microbial Fuel Cells with Graphite Based Electrodes. *4<sup>th</sup> European Fuel Cell Conference and Exhibition*, Piero Lunghi Conference, 14-16 December **2011**, Rome Italy.
1. **C. Santoro\***, P. Cristiani, A. Agrios, B. Li. Effects of Electrodes Geometric Area on Wastewater Treatment and Power Generation in Microbial Fuel Cell. *3<sup>rd</sup> International Microbial Fuel Cell Conference*, 6-8 June **2011**, Leeuwarden, The Netherlands.

## CONFERENCE - POSTER PRESENTATION (19) - co-author \*presenter

19. B.K. Mutuma, N.F. Sylla, A. Bubu, N.M. Ndiaye, F. Poli, A. Brilloni, T. Polci, **C. Santoro**, F. Soavi, N. Manyala\*. Lignin-derived carbons for supercapacitors and microbial fuel cells. *71<sup>st</sup> Annual Meeting of the International Society of Electrochemistry*. 2-3 September **2020**. *VIRTUAL FORMAT*.
18. M. Mashkour, M. Rahimnejad, M. Mashkour, **C. Santoro\***, F. Soavi. Bacterial Cellulose-Based Microbial Fuel Cells. *70<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 4-9 August **2019**. Durban, South Africa.

17. M. Mashkour\*, M. Rahimnejad, M. Mashkour, **C. Santoro**, F. Soavi. Metal Oxides-Bacterial Cellulose Based Air-Breathing Cathode in Microbial Fuel Cell. Workshop: Materials for Today's energy Challenges. 3-4 June **2019**. Padua, Italy.
16. M.J. Salar-Garcia\*, A. De Ramon Fernandez, **C. Santoro**, J. Greenman, I.A. Ieropoulos. Optimization of Ceramic-type Microbial Fuel Cell Fed with Urine by Varying Different Operating Parameters. *VENICE 2018 – 7<sup>th</sup> International Symposium on Energy from Biomass and Waste*, 15–18 October **2018**, Venice, Italy.
15. I. Gajda\*, J. You, **C. Santoro**, J. Greenman, I.A. Ieropoulos, Anode Surface Modification with Activated Carbon for Improved Generation in Urine Fed Microbial Fuel Cells, *69<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 2-7 September **2018**. Bologna, Italy.
14. M. Kodali\*, **C. Santoro**, S. Rojas-Carbonell, A. Serov, K. Artyushkova, P. Atanassov, PGM-free Catalysts for Improved Performances in Microbial Fuel Cell, *68<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 27 August – 1 September, **2017**. Providence-RI, USA
13. **C. Santoro**, F. Soavi\*, A. Serov, C. Arbizzani, P. Atanassov. Microbial Fuel Cell Integrated with Self-Powered Supercapacitor. *67<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 21 – 26 August, **2016**. The Hague. The Netherlands.
12. K. Palanisamy, A.F.B.M. Batcha, **C. Santoro**, T. Seviour, J. Hinks, F.M. Lauro, E. Marsili\*. Carbon Nanotube Supported Escherichia coli as a Bioanode for Detection of Volatile Organic Compounds. *67<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 21 – 26 August, **2016**. The Hague. The Netherlands.
11. **C. Santoro**, A. Serov, K. Artyushkova, J. Gordon, M. Kodali, S. Rojas-Carbonell, P. Atanassov\*. Precious Metals-free Catalysts for Oxygen Reduction Reaction for Microbial Fuel Cell Cathodes. *67<sup>th</sup> Annual Meeting of the International Society of Electrochemistry*. 21 – 26 August, **2016**. The Hague. The Netherlands.
10. S. Chan\*, T. Phan, S. Babanova, **C. Santoro**, P. Atanassov, O. Bretschger. Characterization and Optimization of Gas Diffusion Cathode for Single-Chamber Microbial Fuel Cells Application. *229<sup>th</sup> Electrochemical Society Meeting*, 29 May – 3 June, **2016**. San Diego-CA USA.
9. C. Lopez\*, **C. Santoro**, P. Atanassov, M.D. Yates, L.M. Tender. Microbial Fuel Cell Anode Materials: Supporting Biofilms of Geobacter Sulfurreducens. *229<sup>th</sup> Electrochemical Society Meeting*, 29 May – 3 June, **2016**. San Diego-CA USA.
8. **C. Santoro**, A. Serov, P. Atanassov, C. Arbizzani, F. Soavi\*. A Self-powered Supercapacitive Microbial Fuel Cell. *1<sup>st</sup> Congress of the Interdivisional Group of the Italian Chemical Society on Chemistry of Renewable Energies (ENERCHEM)*. February 18–20, **2016**, Florence, Italy.
7. **C. Santoro**, A. Serov, P. Atanassov, C. Arbizzani, F. Soavi\*. A Self-powered Microbial Fuel Cell – Supercapacitor System. *GEI 2015 – Giornate dell'elettrochimica italiana (Italian Electrochemical Days)*. 20-24 September, **2015**, Bertinoro (FC), Italy.
6. **C. Santoro**, A. Fatima Binti Mohidin Batcha, T. Seviour, J. Hinks, L. Lo Grasso, Y. Pui Yi, F. Lauro, E. Marsili\*. Design of a Novel Bioelectrochemical Sensor for Volatile Organic Compounds (VOCs) Detection in Wastewater. *XXIII International Symposium on Bioelectrochemistry and Bioenergetics*, 14-18 June, **2015**, Malmo, Sweden.
5. J. Zhou\*, X. Wang, **C. Santoro**, P. Cristiani, G. Squadrito, B. Li. Cathode Influence on Coulombic Efficiency in Microbial Fuel Cells (MFCs) Treating Wastewater. *AsiaPacific- International Society for Microbial Electrochemistry and Technology (AP-ISMET)*, January 13-15, **2013**, Harbin, China.
4. U. Karra\*, **C. Santoro**, C. Tenaglier, T. Vadas, A. Mackay, B. Li. The Effects of Nitrate and Sulfate on the Power Generation of Microbial Fuel Cells. *NorthAmerica-International Society for Microbial Electrochemistry and Technology (NA-ISMET)*, October 7-9, **2012**, Ithaca-NY, USA.
3. I. Gajda\*, J. Greenman, C. Melhuish, I. Ieropoulos, **C. Santoro**, B. Li, P. Cristiani. Improved Carbon Cathodes for Microbial Fuel Cells (MFCs). *Society for Industrial Microbiology and Biotechnology 2012*, August 12-16, **2012**, Washington-DC, USA.

2. U. Karra, **C. Santoro\***, B. Li, S. Manickam, J. McCutcheon. A Novel Anode Material of Carbon Nanofiber to Optimize Wastewater Treatment using Microbial Fuel Cells (MFCs). *4<sup>th</sup> European Fuel Cell Conference and Exhibition, Piero Lunghi Conference*, 14-16 December **2011**, Rome Italy.
1. **C. Santoro**, B. Li\*, P. Cristiani. Novel Platinum (Pt)-free Cathodes for Microbial Fuel Cells (MFCs) Treating Wastewater. *84<sup>th</sup> annual WEFTEC*, 16-19 October. **2011**. Los Angeles-CA USA.

## INVITED SEMINAR (20)

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20. **C. Santoro**. *Advancements in Microbial Electrochemical Systems: Cathode Electrocatalysis and Supercapacitive Mode Operations*. University of Newcastle. 5 May, **2021**. Newcastle (UK). VIRTUAL
19. **C. Santoro**. *Advancement in platinum group metal (PGM-free) catalysts for oxygen reduction reaction*. University of Manchester. 20 January, **2020**. Manchester (UK).
18. **C. Santoro**. Insights in platinum group metal (PGM-free) catalysts for oxygen reduction reaction. University of Genoa. 5 September, **2019**. Genoa (Italy).
17. **C. Santoro**. *Platinum group metal (PGM-free) catalyst for oxygen reduction reaction in the entire pH spectrum*. Italian Institute of Technology (IIT). 3 June, **2019**. Milan (Italy).
16. **C. Santoro**. *Advancements in platinum group metal (PGM-free) catalyst for oxygen reduction reaction along the entire pH spectra*. University of Milano-Bicocca. 31 May, **2019**. Milan (Italy).
15. **C. Santoro**. *Integration of Supercapacitors within Bioelectrochemical Systems*. Bristol Robotics Laboratory. 12 December, **2018**. Bristol (UK).
14. **C. Santoro**. *Oxygen Reduction Reaction (ORR) in (Circum)neutral Media*. Bristol Veterinary School, University of Bristol. 9 July, **2018**. Bristol (UK).
13. **C. Santoro**. *Microbial Fuel Cells and their Role in Bioenergy*. University of Bologna, Department of Chemistry "G. Ciamician". 14 May, **2018**. Bologna (Italy).
12. **C. Santoro**. *Bioelectrochemical Engineering Systems: a Mixture of Electrochemistry, Microbiology and Engineering*. University of Padua, Department of Industrial Engineering. 29 July, **2016**. Padua (Italy).
11. **C. Santoro**. *Inside the Water-Energy Nexus with Bioelectrochemical Systems: a Mixture of Electrochemistry and Microbiology*. University of Wyoming, Department of Civil and Architectural Engineering. 12 April, **2016**. Laramie-WY USA.
10. **C. Santoro**. *Microbial Electrochemical Technology: Overview, Bottleneck and Directions*. San Diego State University, Department of Civil, Construction and Environmental Engineering. 28 January, **2016**. San Diego-CA USA.
9. **C. Santoro**. *Microbial Electrochemical Technology: Overview, Bottleneck and Directions*. University of New Mexico, Department of Chemical and Biological Engineering. Group Seminar 2016. 25 January, **2016**. Albuquerque-NM USA.
8. **C. Santoro**. *Combining a Super Capacitor with a Microbial Fuel Cell*. Bristol Robotics Laboratory, 7 January **2016**. Bristol, UK.
7. **C. Santoro**. *Microbial Electrochemical Technology: Possibilities within Water-Energy Nexus*. Desert Research Institute, 5 August **2015**. Las Vegas-NV USA.
6. **C. Santoro**. *Bio-electrochemical Systems Anode and Cathode Materials Development, Microbial Community Selection and Utilization of Real Wastewaters*. University of Padua, Department of Industrial Engineering, 22 January **2015**, Padua (Italy).
5. **C. Santoro**. *Bioelectrochemical Systems*. Nanyang Technological University, Singapore Centre on Environmental Life Sciences Engineering (SCELSE) Seminar, 21 August **2014**, Singapore.
4. **C. Santoro**. *Microbial Bio-electrochemical Technology*. University of New Mexico, Department of Nuclear and Chemical Engineering. Group Seminar 2014. 17 February, **2014**. Albuquerque-NM USA.
3. **C. Santoro**. *Microbial Fuel Cells: From Cathode to Bio-cathode, from PBS to Real Waste, from Lab to Real Applications*. University of New Mexico, Department of Nuclear and Chemical Engineering, Group Seminar 2014. 28 January, **2013**. Albuquerque-NM USA.

2. **C. Santoro**. *Understanding of Cathode Behavior in Microbial Fuel Cell (MFC): Effect of the Cathode Biofilm on Cathode Structure, Performance and Organic Compounds Degradation*. University of Connecticut, Department of Civil and Environmental Engineering Seminar 2012. 20 January, **2012**. Storrs-CT USA
1. **C. Santoro**. *From Hydrogen Fuel Cells to Microbial Fuel Cells*. Seminar for the Graduate School at the Civil and Environmental Engineering (Politecnico di Milano), 10 June **2009**.

## INTERNATIONAL COLLABORATORS (past and/or ongoing)

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Cinzia Casiraghi, Christopher Parlett, Jonathan Lloyd, Rosa Cuellar Franca, University of Manchester, UK

Plamen Atanassov, University of California Irvine, USA

Alexey Serov, Oak Ridge National Laboratory, USA.

Santiago Rojas-Carbonell, W7 Energy LLC, USA

Andrew Schuler, Jose' Cerrato, Kerry Howe, University of New Mexico, USA

Baikun Li, Alexander Agrios, Timothy Vadas, Ugur Pasaogullari, University of Connecticut, USA

Jason Ren, Princeton University, USA

Christopher Arges, Louisiana State University (USA)

Lior Elbaz, Bar-Ilan University (Israel)

Orianna Bretschger, Sofia Babanova, Aquam LLD, USA

Ruggero Rossi, Bruce Logan, Penn State University (USA)

Uwe Schroeder, Technical University of Braunschweig, Germany

Falk Harnisch, Helmholtz Centre for Environmental Research – UFZ, Germany

Glenn Johnson, Hexpoint Technologies LLC, USA

Viktor Hacker, Technical University of Graz, Austria

Alain Bergel, Benjamin Erable, Laboratoire de Genie Chimique de Toulouse, CNR, France

Deepak Pant, Flemish Institute for Technological Research (VITO)

Enrico Marsili, Nanyang Technological University (NTU)

Maurizio Santini, University of Bergamo, Italy

Pierangela Cristiani, Ricerca Sul Sistema Energetico S.p.A., Italy

Fabio Di Fonzo, Italian Institute of Technology

Mariangela Longhi, Stefano Trasatti, University of Milan, Italy

Barbara Mecheri, University of Rome Tor Vergata, Italy

Andrea Casalegno, Andrea Baricci, Politecnico di Milano, Italy

Stefania Specchia, Politecnico di Torino, Italy

Vito Di Noto, University of Padua, Italy

Gaetano Squadrito, Vincenzo Baglio, Advanced Technologies for Energy Institute – ITAE – CNR, Italy

Alessandro Lavacchi, CNR-ICCOM Florence, Italy

Francesca Soavi, Catia Arbizzani, University of Bologna, Italy

## SERVICES and ACADEMIC DUTIES

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### 2020-2021

Electoral commission for the Elections of the Director of the Department of Materials Science, University of Milano-Bicocca. **May 27<sup>th</sup>** and **June 3<sup>rd</sup> 2021**.

Webinar on “Hydrogen applications and future Scenarios” sponsored by Lombardy Energy and Cleantech Cluster Day 2021. **April 22<sup>th</sup> 2021**. Presentation on hydrogen technologies: “Hydrogen technology for automotive applications”

Degree Committee Member in Optics and Optometry (Bachelor of Science). University of Milano-Bicocca. **11<sup>th</sup> March 2021**

Interview at Radio 24 (Italian Radio) during the program Smart City related on commenting the article: “A super Electroactive Bacteria for cleaning water”. **November 24<sup>th</sup>, 2020**

#### *Graduate Advisor*

Advised and aided a PhD student (**Mohsin Muhyuddin**, University of Milano-Bicocca) on platinum group metal-free catalysts for ORR and HER.

Advised and aided a PhD student (**Federico Poli**, University of Bologna) on sediment microbial supercapacitors. Advised and aided a PhD student (**Valerio Ficca**, University of Rome Tor Vergata) on the poisoning effect of anions on the electrocatalytic activity of Fe-N-C towards oxygen reduction reaction in neutral media. Application to the Synchrotron.

#### *Master of Engineering Degree coordinator at the University of Manchester*

Organization of the coursework and the available projects. Allocation of students to professors. Coordination of the assignments and the deadlines. Marking and moderation of marking.

#### *Welcome Week at the University of Manchester*

Event that describe the activities and the courses of the students of the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year for the Academic year 2020-2021

#### *Meeting your academics at the University of Manchester*

Event that celebrate and showcase the great and diverse research and teaching that our academic staff work on in the Department. **October 28<sup>th</sup>, 2020**

### **2019-2020**

#### *Graduate Advisor*

Advised and aided a PhD student (**Federico Poli**, University of Bologna) on sediment microbial supercapacitors. Advised and aided a PhD student (**Valerio Ficca**, University of Rome Tor Vergata) on the poisoning effect of anions on the electrocatalytic activity of Fe-N-C towards oxygen reduction reaction in neutral media.

#### *Department Seminar Organizer*

**Prof. Stefano Passerini (KIT)**. "Hard Carbons for Sodium-Ion Batteries: Structure, Analysis, Sustainability and Electrochemistry". **29 July 2020**. Manchester, UK. (*VIRTUAL SEMINAR*)

**Prof. Vito Di Noto (University of Padua)**. "Recent Advances in Electrocatalysts for the Oxygen Reduction Reaction Comprising a Hierarchical Graphene-Based "Core" and a Carbon Nitride "Shell" with a Low Loading of Platinum". **11 May 2020**. Manchester, UK. (*VIRTUAL SEMINAR*)

### **2018-2019**

#### *Graduate Advisor*

Advised and aided a PhD student (**Federico Poli**, University of Bologna) and a Master student (**Jacopo Seri**, University of Bologna) on the integration of microbial fuel cells with external supercapacitors. Advised and aided a PhD student (**Valerio Ficca**, University of Rome Tor Vergata) on the poisoning effect of anions on the electrocatalytic activity of Fe-N-C towards oxygen reduction reaction in neutral media.

#### *Heathrow Family day*

Exhibition of bioelectrochemical systems. Hangar 2. **June 15<sup>th</sup> 2019**. Heathrow Airport, UK.

#### **Deputy Director** of the Bristol BioEnergy Center (BBiC)

### **2017-2018**

Interview at Radio 24 (Italian Radio) during the program Smart City related to biological fuel cells

#### *Graduate Advisor*

Advised and aided several post-doctoral fellows on the study of self-stratifying microbial fuel cells, supercapacitive microbial fuel cells and basic electrochemistry applied for single electrode polarization.

#### **Deputy Director** of the Bristol BioEnergy Center (BBiC)

### **2016-2017**

#### *Graduate and Undergraduate Advisor*

Advised and aided one graduate student (**Mounika Kodali**, University of New Mexico) on the study of pharmaceutical removal using biological/electrochemical system and ii) the study of novel platinum-free cathode catalysts for MFC.

Advised and aided one graduate student on the study of integration between bioelectrochemical systems and supercapacitors (**Mounika Kodali**, University of New Mexico).

Advised a graduate student (**Francisco Moruno Lopez**, University of New Mexico) of the development of microbial desalination cells.

Advised and aided one undergraduate student (**Sergio Herrera**, University of New Mexico) on the integration of microbial desalination cell with supercapacitors.

Supervisor of an undergraduate student (**Roxanne Awais**, University of New Mexico) during her Fellowship "McNair" during the Summer 2017.

## **2015-2016**

### *Graduate and Undergraduate Advisor*

Advised and aided one graduate student on the study of pharmaceutical removal using electrochemical oxidation (**Mosaddek Hossen**, University of New Mexico).

Advised and aided one graduate student (**Mounika Kodali**, University of New Mexico) on: i) the study of pharmaceutical removal using biological/electrochemical oxidation and ii) the study of novel platinum-free cathode catalysts for MFC.

Advised and aided one graduate student (**Jeremiah Houghton**, University of New Mexico) on the study of integration between bioelectrochemical systems and supercapacitors.

Advised and aided one undergraduate student on the integration of microbial desalination cell with supercapacitors (**Fernando Benito Abad**, University of New Mexico).

## **2014-2015**

### *Undergraduate Advisor* (Summer 2014)

Advised and aided undergraduate students (**Jonathan Gordon**, University of New Mexico and **Lydia Stariha**, Grinnell College) on development of iron based catalyst based on novel low cost precursors.

### *Teacher Advisor* (Summer 2014)

Advised a Teacher (**Irina Cislaru**) from the program Research Experience for Teachers (RET) funded by the National Science Foundation. The teacher has been involved in testing new cathode catalysts into microbial fuel cell systems.

## **2013-2014**

### *Graduate and Undergraduate Co-Advisor* (Fall 2013 and Spring 2014)

Advised and aided graduate and undergraduate students on bacteria attachment on modified surfaces and bioelectrochemical systems for wastewater treatment and electrical energy production.

## **2012-2013**

### *Senior Design* (Spring 2013)

Advised and aided a team of undergraduate students. Students utilized brewery wastewater in microbial fuel cell for wastewater treatment and electrical energy production.

### *REU* (Research Experience for Undergraduate) (Spring 2013)

Advised and aided undergraduate students. Students optimize activated carbon cathode varying applied pressure and temperature treatment. The obtained material has been tested in a marine fuel cell system.

### *Research Credits for Undergraduate Students* (Fall 2012 and Spring 2013)

Advised and aided undergraduate students working on a research project related with urine utilization for simultaneous wastewater treatment, nutrients recovery and electricity generation.

### *Open House* (Fall 2012)

Led a group of visitors in the Engineering Building at the University of Connecticut

## **2011-2012**

### *Senior Design* (Spring 2012)

Advised and aided a team of undergraduate students. Students worked on modified carbon cloth as anode in microbial fuel cell for wastewater treatment and electrical energy production.

### *REU* (Research Experience for Undergraduate) – NSF

Advised and aided undergraduate students. The students optimized an existing microbial fuel cell pilot scale system for treating wastewater.

*Research Credits for Undergraduate Students*

Advised and aided 6 undergraduate students working on a research projects related with the electrochemical performance of carbonaceous based cathode for microbial fuel cells.

*Open House*

Leaded a group of visitors in the Engineering Building at the University of Connecticut