

## **Short Curricul Vitae of Antonino Natalello**

### **PRESENT POSITION**

Since September 2018: Associate professor of APPLIED PHYSICS at the Department of Biotechnology and Biosciences, University of Milano-Bicocca, Milan, Italy.

A. Natalello obtained the National Scientific Qualification (Abilitazione Scientifica Nazionale) for Full Professor of Applied Physics on December 2017 and on October 2023.

### **EDUCATION**

- 2002: Laurea (Master Degree) in Industrial Biotechnology (110/110 cum laude), University of Milano-Bicocca, Milan, Italy.
- 2006: PhD in Industrial Biotechnology, University of Milano-Bicocca, Italy. Title of the Thesis "Protein stability and aggregation studied by biophysical methods" (Supervisor: Prof. S. M. Doglia).
- February 2005-Jun 2005: he has been visiting scientist at the Institute of Organic Chemistry of the Johannes Kepler University (Linz, Austria) performing research activities on mass spectrometry for protein studies (Supervisor: Prof. R. Grandori).

### **APPOINTMENTS**

- Since September 2018: Associate Professor of APPLIED PHYSICS at the Department of Biotechnology and Biosciences, University of Milano-Bicocca, Milan, Italy.
- 2015-2018: Temporary Assistant Professor (RTD b - art. 24, comma 3, lettera b, legge 240/2010) of APPLIED PHYSICS at the Biophysics laboratory of the Department of Biotechnology and Biosciences, University of Milano-Bicocca, Milan, Italy
- 2013-2015: postdoctoral fellow, Department of Physics, University of Milano-Bicocca, Milan, Italy.
- 2008-2012: postdoctoral fellow, Department of Biotechnology and Biosciences, University of Milano-Bicocca, Milan, Italy.
- 2007: research fellow from "Regione Lombardia", Department of Biotechnology and Biosciences, University of Milano-Bicocca.

### **RESEARCH INTERESTS**

-Protein interactions, folding, misfolding, and aggregation in vitro and in situ studied by biophysical approaches, including infrared spectroscopy and micro-spectroscopy, optical spectroscopies (absorption, fluorescence, circular dichroism), and mass spectrometry. Major research topics: 1) protein stability; 2) amyloid aggregation; 3) structure-function relation; 4) aggregation of recombinant proteins; 5) protein-protein and protein-ligand interactions; 6) nano- and bio-materials.

-Bioanalytical applications of spectroscopic methods. Major research topics: FTIR (micro)spectroscopy of complex biological systems; in situ studies of biological processes; spectroscopic markers of neurodegenerative disorders in biofluids.

### **GRANTS**

- February 2023-present: FONDAZIONE CARIPLO Project n. 2022-0529 "RITESSERE. Silk sericin materials from textile industry by-products".  
Role in the project of A. Natalello: PI of the research unit of the University of Milano-Bicocca. 36 months.
- February 2021-present: FONDAZIONE CARIPLO Project n. 2020-0838 "From local dairy waste to Sugar blocks for the synthesis of bioPolymerS (SURPLaS)".  
Role in the project of A. Natalello: responsible for the bioanalytical activities by optical spectroscopies. 30 months.
- November 2019-present: FONDAZIONE CARIPLO Project n. 2018-0458 "Osteocalcin in bone metabolism and aging: molecular mechanisms and biomarkers of the bone-energy crosstalk".  
Role in the project of A. Natalello: responsible for the conformational characterizations of the proteins under investigations (by optical spectroscopies) and of their biomolecular interactions (by Isothermal Titration Calorimetry and Surface Plasmon Spectroscopy). 36 months.

- 2017-FFABR: Finanziamento annuale individuale delle attività base di ricerca (MIUR).
- 2014-2016: FONDAZIONE CARIPLO Project n.2013.0964 "Structure-function relation of amyloid: understanding the molecular bases of protein misfolding diseases to design new treatments".  
Role in the project of A. Natalello: PI of the research unit of the University of Milano-Bicocca. 36 months.
- 2010-2012: Grant ASTIL of the Lombardy Region for the project "Diesel-Biotech: Produzione di biodiesel per via biotecnologica" Italian Regional Government.  
Role in the project of A. Natalello: involved in the bioanalytical activities by optical spectroscopies. 18 months.
- 2009-2010: PRIN 2007. Project n. 2007XY59ZJ\_004 "A multidisciplinary approach to the study of in vivo and vitro aggregation of polyglutamine-containing proteins. Role of molecular and environmental factors".  
Role in the project of A. Natalello: involved in the conformational characterizations of the proteins under investigations (by optical spectroscopies). 24 months
- 2007: "Regione Lombardia", Bando "ingenio". Project title:"Protein aggregation in biomedicine and biotechnology".  
Role in the project of A. Natalello: principal investigator. 12 months.

#### OTHER TITLES

- Since 2021, Departmental representative for students with disabilities and specific learning disorders (DSA)
- Since 2021, Consultant for project evaluation (Fondazione Cariplo, Science Foundation Ireland)
- Since 2019, Scientific committee member of the "molecular Biorecognition" departmental platform
- Since 2015, Scientific responsible for Spectroscopic analyses for third parties of the department of Biotechnology and Bioscience of the University of Milano-Bicocca
- November 2014. National Scientific Qualification (Abilitazione Scientifica Nazionale) for Associate Professor of Experimental Physics of Matter (sector 02/B1).
- Jun 2014. National Scientific Qualification for Associate Professor of Biochemistry (Sector 05/E1).
- Editorial activity
  - Since 2023, Editorial Board Member of "Frontiers in Molecular Biosciences", sections: Molecular Biophysics, Structural Biology;
  - Since 2020, Editorial Board Member of "International Journal of Molecular Sciences";
  - Invited ad hoc reviewer for several Journals, among them: PLoS ONE, J. Am. Chem. Soc., Biochemistry, ChemComm, Eur. Biophys. J., Biomaterials, Microb. Cell Fact., BioTechniques, Energy & Fuels, Biomolecules, BioMed Research International, Biotechnology for Biofuels, FEBS Journal, Molecular Pharmaceutics, Biophys. Chem., Sci. Rep., BBA-Proteins and Proteomics, Int. J. Mol. Sci..
- Membership of scientific societies
  - Società Italiana di Fisica (SIF)
  - Società Italiana di Biofisica Pura e Applicata (SIBPA)

#### PUBLICATIONS AND OFFICIAL h-index (ORCID ID: <http://orcid.org/0000-0002-1489-272X>)

- 120 publications on peer-reviewed, international journals;
- total citations: more than 4300 in Google Scholar (Nov. 2023); more than 3400 in Scopus (Nov. 2023);
- h-index: h=40; Google Scholar, Nov. 2023 (<https://scholar.google.com/citations?hl=it&user=CQkk38UAAAAJ>).
- h-index: h=35; Scopus, Nov.2023 (<https://www.scopus.com/authid/detail.uri?authorId=6507232286>).
- 9 chapters on international books;
- more than 100 participations to national and international congresses;
- 9 invited or selected oral presentations at national and international meetings.

#### SELECTED PUBLICATIONS:

- 1) Ami D, Mereghetti P, Natalello A\*. Contribution of Infrared Spectroscopy to the Understanding of Amyloid Protein Aggregation in Complex Systems (2022) *Frontiers in Molecular Biosciences*, 9, art. no. 822852.
- 2) Ami D, Franco AR, Artusa V, Mereghetti P, Peri F, Natalello A\*. A Global Picture of Molecular Changes Associated to LPS Treatment in THP-1 Derived Human Macrophages by Fourier Transform Infrared Microspectroscopy (2022) *International Journal of Molecular Sciences*, 23 (21), art. no. 13447.
- 3) Ami D, Duse A, Mereghetti P, Cozza F, Ambrosio F, Ponzini E, Grandori R, Lunetta C, Tavazzi S, Pezzoli F, Natalello\* A. Tear-Based Vibrational Spectroscopy Applied to Amyotrophic Lateral Sclerosis. *Anal Chem.* 2021 Dec 28;93(51):16995-17002. doi: 10.1021/acs.analchem.1c02546. Epub 2021 Dec 14. PMID: 34905686; PMCID: PMC8717331.
- 4) Ami D, Sciandrone B, Mereghetti P, Falvo J, Catelani T, Visentin C, Tortora P, Ventura S, Natalello A\*, Regonesi ME. Pathological ATX3 Expression Induces Cell Perturbations in *E. coli* as Revealed by Biochemical and Biophysical Investigations. *Int J Mol Sci.* 2021 Jan 19;22(2):943. doi: 10.3390/ijms22020943. PMID: 33477953; PMCID: PMC7835732.
- 5) Sala BM, Le Marchand T, Pintacuda G, Camilloni C, Natalello\* A, Ricagno S. Conformational Stability and Dynamics in Crystals Recapitulate Protein Behavior in Solution. *Biophys J.* 2020 Sep 1;119(5):978-988. doi: 10.1016/j.bpj.2020.07.015. Epub 2020 Jul 24. PMID: 32758421; PMCID: PMC7474178.
- 6) Ami D, Mereghetti P, Folli A, Tasaki M, Milani P, Nuvolone M, Palladini G, Merlini G, Lavatelli F, Natalello A\*. ATR-FTIR Spectroscopy Supported by Multivariate Analysis for the Characterization of Adipose Tissue Aspirates from Patients Affected by Systemic Amyloidosis. *Anal Chem.* 2019 Feb 19;91(4):2894-2900. doi: 10.1021/acs.analchem.8b05008. Epub 2019 Feb 4. PMID: 30676723.

Milano  
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Antonino Natalello

