Eleonora Perego - Curriculum Vitae

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Contact Information

Work address:
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Personal Data

Last name: Perego
First name: Eleonora
Birth: January, 15th 1991, Milano, Italy
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Research Activity

Currently, my research interests are the design, development, and validation of novel optical and analytical tools that allow modern biologists to peer inside living biological systems with unprecedented temporal/spatial abilities and massive information content. Generally, I aim to take advantage of physics to understand a bit better the world we are living in.

Education

Ph.D. in Biophysics, June 2020
International Max Planck Research School for Physics of Biological and Complex Systems - IMPRS-PBCS, **Georg-August-Universität Göttingen**, Göttingen, Germany.
Thesis Title: Studying molecular interactions under flow with Fluorescence Fluctuation Spectroscopy.
Supervisor: Prof. Dr. Sarah Köster
Final grade: Magna cum Laude

M.Sc. in Physics, October 2015,
Department of Physics, at University of Milano-Bicocca, Italy.
Thesis Title: The role of mechanical forces in the robustness of*C. Elegans* embryonic development.
Supervisors : Professor Giuseppe Chirico, Dr. Jeroen Van Zon
Final grade: 110/110 *cum laude*

B.Sc. in Physics, October 2013,
Department of Physics, at University of Milano-Bicocca, Italy.
Thesis Title: Internalization study of metal nanoparticles in cells by optical microscopy in reflection with correlative and imaging methods.
Supervisors : Prof. Maddalena Collini,

Academic Experiences

Istituto Italiano di Tecnologia (IIT), Genoa, Italy

Postdoctoral Researcher **March 2021 to date**

Postdoctoral researcher at Molecular Microscopy and Spectroscopy research line at the Department of Nanophysics

Georg-August-Universität Göttingen, Göttingen, Germany

Doctoral Research **December 2015 to February 2021**

Doctoral fellow at the Cellular Biophysics group of Prof. Koester at the Department for X-Ray Physics.

During my doctoral research, I conducted multiple projects; listed here are the main ones:

- Designing and experimentally implementing microfluidic devices to investigate the early time points of protein aggregation with fluorescence spectroscopy methods.
- Investigation of synaptic protein interactions and cytoskeleton formation with fluorescence spectroscopy methods by designing an in vitro model of the synapse.
- Designing and experimentally implementing a microfluidic device to investigate the behavior of synaptic vesicles.

Amolf Institute, Amsterdam, the Netherlands

Undergraduate research **February 2015 to December 2015**

Research fellow at the Quantitative Developmental Biology group of Dr. van Zon.

Professional Societies

- Società Italiana di Fisica
- Biophysical Society
- Royal Microscopical Society
- Società Italiana di Biofisica Pura ed Applicata
- Deutsche Physikalische Gesellschaft - German Physical Society (from 2015 to 2020)

Supervised Personnel

Bachelor Students

- February 2017 - July 2017: Sebastian Smeik (supervisor at Cellular Biophysics group)

Master Students

- April 2020 - February 2021: Magdalena Haaf (supervisor at Cellular Biophysics group)

PhD Students

- November 2021 - Ongoing: Sabrina Zappone (co-supervisor at IIT)

Teaching Experiences

- **Lecturer**, course for the Ph.D. program in Bioengineering and Robotics, University of Genoa, "Hybrid microfluidics systems for electronics, photonics, biology and sensors " (March 2022)
- **Lecturer**, course for the Ph.D. program in Bioengineering and Robotics, University of Genoa, "Hybrid microfluidics systems for electronics, photonics, and sensors " (May 2021)
- **Laboratory assistant**, course for Master Degree in Physics of the Georg-August Universität of Göttingen, "Principles of computational microfluidics" (Winter semester 2020, Summer semester 2020)
- **Laboratory assistant**, course for Master Degree in Physics of the Georg-August Universität of Göttingen, "Principles of applied microfluidics" (Winter semester 2017, Summer semester 2017, Winter semester 2018, Summer semester 2019)
- **Teaching assistant**, course for Master Degree in Physics of the Georg-August Universität of Göttingen, "Biophysics" (Winter semester 2017)

Conference

- Annual Biophysical Society Meeting, February 2023 (talk)
- National Congress of the Italian Society for Pure and Applied Biophysics (SIBPA) (talk 2022)

- Focus on Microscopy (FOM) (talk on-line, 2022)
- Biophysical Society Annual Meeting (poster accepted, 2022)
- National Congress of the Italian Society for Pure and Applied Biophysics (SIBPA) (talk on-line, 2021)
- EMBL in Italy (flash talk on-line and in person, 2021)
- Deutsche Physikalische Gesellschaft (DPG) - Condensed matter and Biological physics (Regensburg 2016, Dresden 2017, Regensburg 2019, poster)
- Jülich Soft Matter Days (poster, Jülich, Germany, 2019)
- International School of Biophysics "Antonio Borsellino", 43rd Course: Nanoscale Biophysics (flash talk, Erice, Italy 2019)

Grants Awards

- "Trapezio" grant for the project "SPADynamics" from Compagnia San Paolo, June 2023 (€ 120000 for two years)
- Travel Grant SIBPA for attending at "2023 Annual Biophysical Society Meeting", February 2023
- Travel Grant SIBPA for attending at "XXVI Congresso Nazionale della Società Italiana di Biofisica Pura e Applicata," September 2022
- Seal of Excellence Marie Skłodowska-Curie Individual Fellowships Horizon-2020

Selected Publications

- Perego E, Zappone S, Castagnetti F, Vitiello E, Slenders E, and Vicidomini G.
  "Content-enriched fluorescence lifetime fluctuation spectroscopy to study bio-molecular condensate formation.", 2023, submitted.
- Rossetta A, Slenders E, Donato M, Zappone S, Fersini F, Bruno M, Diotalevi F, Lanzanò L, Koho SV, Tortarolo G, Barberis A, Crepaldi M, Perego E and Vicidomini G.
  "The BrightEyes-TTM as an Open-Source Time-Tagging Module for Democratising Single-Photon Microscopy." **Nature Communication**, 2022,13, 7406, https://doi.org/10.1038/s41467-022-35064-0.
- Rossetta A, Slenders E, Donato M, Perego E, Diotalevi F, Lanzanò L, Koho SV, Tortarolo G, Crepaldi M, and Vicidomini G.
  "The BrightEyes-TTM: an Open-Source Time-Tagging Module for Single-Photon Microscopy." **bioRxiv**, 2021, doi:https://doi.org/10.1101/2021.10.11.463950.
- Slenders E, Perego E, Buttafava M, Tortarolo G, Conca E, Zappone S, Pierzynska-Mach A, Villa F, Petrini EM, Barberis A, Tosi A and Vicidomini G.
  "Cooled SPAD array detector for low light-dose fluorescence laser scanning microscopy." **Biophysical reports**, 2021, 1 (2), 100025
- Perego E, and Köster S.
  "Exploring early time points of vimentin assembly in flow by fluorescence fluctuation spectroscopy." **Lab on a Chip**, 2021, (4), 735-745
- Perego E, Reshetniak S, Lorenz C, Hoffmann C, Milovanović D, Rizzoli SO, and Köster S.
  "A minimalist model to measure interactions between proteins and synaptic vesicles." **Scientific Reports**, 2020, 10 (1), 1-13
- Reshetniak S, Ußling JE, Perego E, Rammner B, Schikorski T, Fornasiero EF, Truckenbrodt S, Köster S and Rizzoli SO.
  "A comparative analysis of the mobility of 45 proteins in the synaptic bouton." **The EMBO journal**, 2020, 39 (16), e104596
- Hanke J, Ranke C, Perego E, and Köster S.
  "Human blood platelets contract in perpendicular direction to shear flow." **Soft Matter**, 2019, 15 (9), 2009-2019
- Denz M, Brehm G, Hémonnot CYJ, Spears H, Wittmeier A, Cassini C, Saldanha O, Perego E, Diaz A, Burghammer M, and Köster S.
  " Cyclic olefin copolymer as an X-ray compatible material for microfluidic devices." **Lab on a Chip**, 2018, (1), 171-178.

Conference Proceeding

- Perego E, Zappone S, Slenders, Castagnetti F, Vitiello E, Mariani D, Mecarelli S L, Bozzoni I

and Vicidomini G.
"Comprehensive fluorescence lifetime fluctuation spectroscopy to investigate protein mobility during aggregation processes in living cells." **Biophysical Journal**, 2023, 122, 3, 16a-17a.

- Bucci A, Perego E, Zappone S, Bega L, Slenders E and Vicidomini G.
"Simultaneous single-particle tracking and fluorescence lifetime measurement with a single-photon detector array."**Biophysical Journal**, 2023, 122, 3, 153a-154a.
- Perego E, Zappone S, Slenders E and Vicidomini G.
"Fluorescence fluctuation spectroscopy with a cooled SPAD array detector to unravel molecular processes in living cells." **Biophysical Journal**, 2022, 121, 3, 141a.

EDITORIAL ACTIVITY

- **Referee** for various journals, including Nature Journals (Nature Communications), OSA Journals (Optics Express, Biomedical Optics Express).