After having received my M.Sc. in Biological Sciences from the University of Pisa in Oct 2003 and my Diploma in Biological Sciences in the same year (both with honors) from SNS, I worked from 2004 to 2009 at the NEST Laboratory of SNS as Ph.D. student in Molecular Biophysics, under the supervision of Prof. Fabio Beltram. I started my interdisciplinary research activity at the crossroad between cell biology and physics: I used advanced fluorescence microscopy methods to study the intracellular transport properties of virus-derived peptide sequences. From Jan 2009 to Dec 2010 I was a Post-Doctoral fellow at the Laboratory for Fluorescence Dynamics, University of California at Irvine, under the supervision of Prof. Enrico Gratton, where I coordinated the research activity for the development of new spatial variants of fluorescence correlation spectroscopy to detect barriers to molecular diffusion/flow in live cells. In Dec 2010 I was hired by the CNI@NEST (IIT) as a Post-Doctoral fellow. Back in Italy, I started working to develop new fluorescence-based imaging and analysis methods to study single molecules in complex biological systems with high spatiotemporal resolution. This research activity was boosted through the years by a number of funded grants (and established collaborations) and by an independent scientific position, first at CNR as Researcher, then at SNS as Professor in Applied Physics.

The focus of my research is on the development of new optical microscopy techniques to increase the amount of quantitative information that can be extracted from investigations on living matter. For instance, in recent years we introduced a number of new spatiotemporal fluctuation-analysis tools (iMSD, iRICS, *n*D-pCF, diffusion tensor analysis, etc.) to extract structural and dynamic properties of biological objects, from molecules to entire sub-cellular structures, in their complex natural environment. Such toolbox is acquiring the rank of a new paradigm for biophysical investigations at the nanoscale, as featured in the “New and Notable” section of *Biophysical Journal (2016 Aug 23; 111(4): 677–678)*. To name a few examples, in 2014, together with my Team, we demonstrated the occurrence of short-range protein Brownian motion in the cell cytoplasm, being among the first to challenge the current view of the structural organization of the crowded intracellular environment. Finally, by combining such toolbox with feedback-based orbital tracking, we demonstrated that even the nanoscopic and dynamic environment of intracellular organelles can be quantitatively probed.