Antonio Ambrosio Résumé

Personal Information
First and Family name: Antonio Ambrosio
Citizenship: Italian e-mail address: ambrosio@seas.harvard.edu
website: http://scholar.harvard.edu/antonio_ambrosio
Language skills and competences: Italian (mother tongue), English (fluent)

Education and training:
2002 - University of Naples "Federico II" - Academic degree equivalent to Master Degree. The final grade was 110/110 cum Laude (maximum)*; Thesis*: "Controlled rotation of micrometric particles trapped by astigmatic optical tweezers"
2006 – School of Graduate Studies "Galileo Galilei", University of Pisa - PhD Degree in Applied Physics. *Thesis*: "Near-field Optical Lithography: results and perspectives on soft samples";

Certified as ***Associate Professor*** in **Applied Physics** and in **Experimental Materials Physics** through a National (Italian) selection procedure.

Current positions:
From November 2017: **Principal Scientist**
Institution: Center for Nanoscale Systems, Harvard University.

Previous Positions:
June 2016 – October 2017: **Research Associate**
Institution: Department of Physics, Harvard University.
January 2014 – June 2016: Researcher (permanent position)
Institution: Italian Research Council (CNR)
***December 2007 – December 2013*:** Researcher (untenured position) at Consiglio Nazionale delle Ricerche (CNR), CNR-SPIN U.O.S. Napoli.
February 2007 – December 2007: Postdoc at Università degli Studi di Napoli Federico II, for research activities on characterization of nanostructured materials.
September 2006 – December 2006: Holder of a grant from *Dipartimento di Scienze Fisiche dell'Università di Napoli Federico II* for research activities (4 months) on the near-field analysis of nanostructured materials.
May 2006 – August 2006: Holder of a grant from *Consiglio Nazionale delle Ricerche (CNR)* for research activities (4 months) to be carried out at CNR-INFM CRS-COHERENTIA.

Fellowships:
2007: Holder of a grant from *Fondazione Angelo Della Riccia* aimed at working in foreign Universities. The grant has been approved on the base of a research project submitted in collaboration with Prof. Achim Hartschuh at the "Ludwig Maximillians Universitat", Munchen (Germany).

Past Experiences:
April 2013 – June 2016: **Visiting Research Scholar**
Institution: Harvard John A. Paulson School of Engineering and Applied Sciences, Harvard University, Prof. Federico Capasso's Group.
***July 2005*:** Experimental Research Activity in the group of Prof. Yoichi Kawakami and Dr. Ruggero Micheletto in the Department of Electronics Science, University of Kyoto, Kyoto (Japan).
February 2004 – July 2004*:* Six months spent in London with the group of Prof. Franco Cacialli in the Department of Physics and Astronomy at University College London (UCL) where part of the PhD research was carried out.

Professional Activities:
- Member of the Editorial Board of Scientific Reports, Nature Publishing Group (2014 - now)

- Reviewer for more than 15 scientific journals (including: *A*CS Nano; Applied Physics Letters; Journal of Physical Chemistry; Langmuir; Laser and Photonics Reviews; Light (NPG Group); Nano Letters; Nature Communications; Optica; Optics Letters; Optics Express; Review of Scientific Instruments; Scientific Reports (NPG Group)).
- Reviewer of Research Proposal for the Research Foundation – Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO)
- Local Organizing Committee of the international workshop "MAMA-Hybrids – Multifunctional Hybrids and Organics", Ischia (Italy), 22-24 October (2012)
- Local Organizing Committee of the XII annual meeting of "Associazione Italiana Sensori e Microsistemi (AISEM)", Napoli (Italy), 12-14 February (2007)
- Member of Scientific Societies: Material Research Society.
- Responsible, at the home Institution, for the research and the development of the *Scanning Probe Platforms.*

Scientific merits:

- More than 60 publications (*Nature Communications, Nature Nanotechnology, Science Advances, Physical Review Letters, Nano Letters, Applied Physics Letters, ACS Photonics, PNAS, etc.*);
- More than 15 invited seminars and talks at conferences or research Institutions;
- More than 20 oral contributions at international conferences.

Publications in Peer-Reviewed International Journals as <u>first</u> and <u>corresponding</u> author

1. A. Ambrosio et al. "Mechanical Detection and Imaging of Hyperbolic Phonon Polaritons in Hexagonal Boron Nitride", ACS Nano, DOI: 10.1021/acsnano.7b02323 (2017)
2. A. Ambrosio et al. "Observation of Nanoscale Refractive index contrast via photoinduced force microscopy", ACS Photonics, vol. 4, p. 846 - 851 (2017)
3. R. Devlin, A. Ambrosio et al. "Spin-to-orbital angular momentum conversion in dielectric metasurfaces", Optics Express, vol. 25, p. 377 - 393 (2017)
4. S. Lee, A. Ambrosio et al. "Directional superficial photofluidization for deterministic shaping of complex 3D architectures", ACS Applied Materials and Interfaces, vol. 7, p. 8209 (2015)
5. G. Galinski, A. Ambrosio et al. "Instability-induced pattern formation of photoactivated functional polymers", PNAS, vol. 111, p. 17017 (2014)
6. A. Ambrosio et al. "Light-induced spiral mass transport in azo-polymer films under vortex-beam illumination", Nature Communications 3:989 (2012)
7. A. Ambrosio et al. "Molecular Model for Light-Driven Spiral Mass Transport in Azopolymer Films", Physical Review Letters, vol. 110, p. 146102 (2013)
8. A. Ambrosio et al., "Controlling spontaneous surface structuring of azobenzene-containing polymers for large-scale nano-lithography on functional substrates", Applied Physics Letters, vol. 102, p. 093102 (2013)
9. A. Ambrosio et al., "Innovative carbon nanotube-silicon large area photodetector", Journal of Instrumentation, vol. 7, P08013 (2012)
10. A. Ambrosio et al. "Two-photon induced self-structuring of polymeric films based on Y-shape azobenzene chromophore", Journal of Physical Chemistry C, vol. 115, p.13566 (2011)
11. A. Ambrosio et al. "Effect of radial defect lines in the focalization of unitary polarization order beams", Applied Physics Letters, vol. 98, p. 091108 (2011)
12. A. Ambrosio et al. "Realization of submicrometer structures by a confocal system on azopolymer films containing photoluminescent chromophores", Journal of Applied Physics, vol. 107, p. 083110 (2010)
13. A. Ambrosio et al. "Two-photon patterning of a polymer containing Y-shaped azochromophores", Applied Physics Letters, vol. 94, p. 011115 (2009)
14. A. Ambrosio et al. "Sensing pulsed light by means of Multi-Walled Carbon Nanotubes", Materials Science in Semiconductor Processing, vol. 11, p. 187 (2008)
15. A. Ambrosio et al. "A new radiation detector made of multi-walled carbon nanotubes", Nuclear Instruments and Methods in Physics Research, Section A, vol. 589, p. 398 (2008)
16. A. Ambrosio et al. "Real-time monitoring of the surface relief formation on azo-polymer films upon near-field excitation", Journal of Microscopy, vol. 229, p. 307 (2008)
17. A. Ambrosio et al. "Thermal processes in metal-coated fiber probes for near-field experiments", Applied Physics Letters, vol. 87, p. 033109 (2005)

Other selected publications

1. R.C. Devlin, **A. Ambrosio**[§], N. A. Rubin, J.P.B. Mueller, F. Capasso, "Arbitrary spin-to-orbital angular momentum conversion of light". *Science*, DOI: 10.1126/science.aao5392 (2017)
2. S.L. Oscurato, F. Borbone, P. Maddalena, **A. Ambrosio***, "Light-Driven Wettability Tailoring of Azopolymer Surfaces with Reconfigured Three-Dimensional Posts". *ACS Applied Materials & Interfaces* **9**, 35, 30133-30142 (2017)
3. M. Khorasaninejad[§], **A. Ambrosio**[§], P. Kanhaiya, F. Capasso*, "Broadband and chiral binary dielectric meta-holograms", Science Advances, 2:e1501258 (2016)
4. P. Genevet [§,]*, D. Wintz[§], **A. Ambrosio**[§], A. She, R. Blanchard, F. Capasso*, "Controlled steering of Cherenkov surface plasmon wakes with a one-dimensional metamaterial", *Nature Nanotechnology*, vol. 10, p. 804 (2015)
5. D. Wintz, P. Genevet, **A. Ambrosio**, A. Woolf, F. Capasso*, "Holographic metalenses for switchable focusing of surface plasmons", *Nano Letters*, vol. 15, p. 3585 (2015)

**corresponding author* *[§]equal contribution*