

Sylvain GIGAN

Date of birth: Apr. 23, 1978
Nationality: French
Email: sylvain.gigan@espci.fr
Webpage: <http://www.institut-langevin.espci.fr/Sylvain-GIGAN>
Address: Institut Langevin, ESPCI, 1 rue Jussieu, 75005 Paris, France

Academic Experience

- 2007-** **Associate-professor (“maitre de conference”)**
@ [Institut Langevin](#), [ESPCI ParisTech](#), Paris, France
Biological imaging, wave control and propagation in complex media
- 2004-2007** **postdoctoral researcher** in the group of Anton Zeilinger
@ University of Vienna and IQOQI, Austria,
On quantum entanglement of macroscopic objects ([Markus Aspelmeyer’s](#) team)

Education

- 2012** **Habilitation à diriger les recherches (HdR)**
2001-2004 **PhD in quantum optics**
@ Kastler-Brossel Laboratory, ENS, Paris (PhD supervisor: [Claude Fabre](#))
- 2001** Master in laser and matter interaction, University Paris XI, Orsay, France
2000 Engineering degree from Ecole Polytechnique, Palaiseau, France

Scientific activity in Brief

- 24 publications in peer-reviewed international journals, totalizing 1550 citations (google scholar), h-index=16.
- 41 oral communications including 12 invited talks at conferences
- 2 PhD students co-supervised in Vienna and 6 PhD students co-directed since 2008 at ESPCI.

Funding ID

As PI or as Co-investigator:

- 2011-2015 **starting Grant** from European Research Council (**PI**)
2010-2013 **starting grant** from Agence Nationale de la Recherche ([ANR](#)) (**PI**)
2010-2012 **Individual grant - Emergence(s)** program from the city of Paris
2010-2012 Pierre Gilles de Gennes Fondation (with L. Bourdieu)
2008 Startup grants from ESPCI and University Paris 6 (**PI**)
2007-2011 **ANR** program MICADO “Microscopy improved with adaptive optics” (**co-PI** at ESPCI with Prof. Boccar)

Teaching activities

- Optics lab courses: 20 different experiments ranging from spectroscopy, Dye Laser, holography, photorefractive effect, Optical Coherence Tomography, etc.
- Optics classes: Physical optics (Fourier optics, coherence) and advanced optics (lasers, anisotropic optic, non-linear optics),
- Design of three new lab experiments: Bell Inequality violations (2009) & Erbium fiber laser (2010) Optical Coherence Tomography (2012)
- Optics and quantum physics tutoring

Other affiliation

- Referee for Science, Nature Photonics, Nature Communications, Physical Review Letters, Physical Review A, Physical Review B, Optics Express, Applied Physics Letters, New journal of Physics, Journal of Applied Physics, and Journal of the Optical Society of America A.
- Reviewer for the French National Research Agency (ANR) and for the French National Research and Technology Agency (ANRT)
- Member of the scientific committee of the JRIOA conference (Journées Recherche-industrie de l'optique adaptative), of the Advanced Imaging Techniques (EOS)
- Co-organizer of the upcoming workshop "Non conventional imaging and focusing techniques: from acoustics to optics », that took place at the scientific institute of Cargèse, Corsica, France (May 2011)
- Member of the Optical Society of America (OSA)

Selected Publications

- (1) J. Ben Arous, J. Binding, J.F. Léger, M. Casado, S. Gigan, A.C. Boccara, L. Bourdieu, *Single myelin fiber imaging in living rodents without labeling by deep optical coherence microscopy*, Journal of Biomedical Optics 16(11), 116012 (2011)
- (2) D.J. McCabe, A. Tajalli, D.R. Austin, P. Bondareff, I.A. Walmsley, S. Gigan, B. Chatel, *spatio-temporal focussing of an ultrafast pulse through a multiply scattering medium*, Nature Communications 2:447 (2011).
- (3) S. Popoff, G. Lerosey, M. Fink, A.C. Boccara, S. Gigan, "Image Transmission Through an Opaque Material", Nature Communications 1:81 (2010)
- (4) S. Popoff, G. Lerosey, R. Carminati, M. Fink, A.C. Boccara, S. Gigan "Measuring the Transmission Matrix in Optics : An Approach to the Study and Control of Light Propagation in Disordered Media" Phys. Rev. Lett. 104, 100601 (2010)
- (5) S. Gigan, H. R. Böhm, M. Paternostro, F. Blaser, G. Langer, J.B. Hertzberg, K. C. Schwab, D. Bäuerle, M. Aspelmeyer, A. Zeilinger . "self-cooling of a micro-mirror by radiation pressure", Nature 444, 67-70 (2006)
- (6) M. Paternostro, D. Vitali, S. Gigan, M. S. Kim, C. Brukner, J. Eisert, M. Aspelmeyer, "Creating and probing macroscopic entanglement with light", Phys. Rev. Lett. 99, 250401 (2007)
- (7) S. Gigan, L. Lopez, V. Delaubert, N. Treps, A. Maitre and C. Fabre "Continuous-wave phase-sensitive parametric image amplification", Journal of Modern Optics 53, 5, 809 (2006)
- (8) S. Gigan, L. Lopez, N. Treps, A. Maître and C. Fabre "Image transmission through a stable paraxial cavity", Phys. Rev. A 72, 023804 (2005)