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CV

Current Position

CNRS Research Director & Deputy manager of the C2N Photonics Dpt, C2N, Palaiseau.

Professional Experience

- 2018 **CNRS Research Director, C2N, Palaiseau.**
- 2016– **Deputy manager of the C2N Photonics Dpt, C2N, Palaiseau.**
- 2006– **Part-time lecturer, ENSTA: Quantum Physics (2006–) Statistical Physics (2011–). Univ. Pierre et Marie-Curie, Master 2 lectures on Laser Techniques (2012–).**
- 2005 **CNRS Chargé de Recherche CR1.**
- 2001 **CNRS Chargé de Recherche CR2, Laboratoire de Photonique et Nanostructures, Marcoussis.**
- 2001 **Post-doc, (6 months) at CNET Bagneux.**
- 1998–2000 **Marie-Curie Post-doctoral fellowship, (2 yrs) Istituto Nazionale di Ottica Applicata (Italy, Florence).**
- 1997–1999 **Part-time lecturer (ATER) , (1 yr) Univ. Paul-Sabatier (Toulouse).**
- 1993–1995 **PhD, Grant from Ministry of Research and teaching assistant at Université de Nice-Sophia Antipolis, Nice..**
& 1996–1997
- 1995–1996 **Military Service, Research scientist at Institut d'Optique Théorique et Appliquée, Orsay..**
- 1993 **Doctoral training, (3 months), Glassboro College (NJ, USA).**

Education

- 2015 **Habilitation à Diriger des Recherches, Université de Paris-Sud, Orsay, Nonlinear spatiotemporal dynamics in semiconductor microcavities.**

- 1998 **PhD in Physics**, *Université de Nice-Sophia Antipolis, Nice.*, *Instabilité de recul dans des vapeurs de Sodium soumises à un fort champ laser*, supervised by G. L. Lippi and J.R. Tredicce.
- 1993 **Engineering diploma from École Nationale Supérieure de Physique de Marseille**, (*now École Centrale Marseille*).
- 1993 **Master in Theoretical Physics**, *Université de Marseille-Luminy, Marseille.*

Selected recent contributions

- 1 *Pulse train interaction and control in a microcavity laser with delayed optical feedback* S. Terrien, B. Krauskopf, N. G. Broderick, R. Braive, G. Beaudoin, I. Sagnes, S. Barbay, *Opt. Lett.* **43**, 3013 (2018)
- 2 *Phase Stochastic Resonance in a Forced Nano-electromechanical Membrane* A. Chowdhury, S. Barbay, M. G. Clerc, I. Robert-Philip, R. Braive, *Phys. Rev. Lett.* **119**, 234101 (2018)
- 3 *Strong Coupling between Self-Assembled Molecules and Surface Plasmon Polaritons* J. Bigeon, N. Belabas, N. Bardou, C. Minot, AM. Yacomotti, JA. Levenson, S. Barbay, *J. Phys. Chem. Lett.* **8**, 5626 (2017)
- 4 *Spatiotemporal chaos induces extreme events in an extended microcavity laser* F. Selmi, S. Coulibaly, Z. Loghmari, I. Sagnes, G. Beaudoin, M. G. Clerc, S. Barbay, *Phys. Rev. Lett.* **116**, 013901 (2016)
- 5 *Temporal summation in a neuromimetic micropillar laser* F. Selmi, R. Braive, G. Beaudoin, I. Sagnes, R. Kuszelewicz, S. Barbay, *Opt. Lett.* **40**, 5690 (2015)
- 6 *Relative Refractory Period in an Excitable Semiconductor Laser* F. Selmi, R. Braive, G. Beaudoin, I. Sagnes, R. Kuszelewicz, S. Barbay, *Phys. Rev. Lett.* **112**, 183902 (2014)
- 7 *Excitability in a semiconductor laser with saturable absorber* S. Barbay, R. Kuszelewicz, A. Giacomotti, *Opt. Lett.* **36**, 4476 (2011)
- 8 *Control of cavity solitons and dynamical states in a monolithic vertical cavity laser with saturable absorber* T. Elsass, K. Gauthron, G. Beaudoin, I. Sagnes, R. Kuszelewicz, S. Barbay, *Eur. Phys. J. D* **59**, 91 (2010)
- 9 *Homoclinic Snaking in a Semiconductor-Based Optical System* S. Barbay, X. Hachair, T. Elsass, I. Sagnes, R. Kuszelewicz, *Phys. Rev. Lett.* **101**, 253902 (2008)
- 10 *Incoherent and coherent writing and erasure of cavity solitons in an optically pumped semiconductor amplifier* S. Barbay, Y. Menesguen, X. Hachair, L. Leroy, I. Sagnes, R. Kuszelewicz, *Opt. Lett.* **31**, 1504 (2006)

Scientific outreach

- Neurone-Laser, Science & Vie 1164, p. 99, sept. 2014
- Semiconductor Lasers Get Nervy, Synopsis in Physics (APS)
- Laser mimics biological neurons using light, News in Physicsworld.com
- Micropillar Laser Mimics Excitability of Neurons, S. Barbay, F. Selmi, 2physics.com blog (2014)