

Adrian Bachtold

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Citizen: Swiss and French
Born in London on 30th November 1972



EDUCATION

June 1999 University of Basel (Switzerland), Ph.D. Physics, Summa Cum Laude
March 1996 Ecole Polytechnique Fédérale de Lausanne (Switzerland), Dipl. Ing. EPFL

EMPLOYMENT

2012-present Professor of ICFO in Barcelona
2010-2012 Professor of ICN at the CIN2(ICN-CSIC) in Barcelona.
2005-2009 Professor/Researcher of CSIC at the CIN2(ICN-CSIC) in Barcelona.
2001-2004 Chargé de recherche CNRS (permanent position) at the ENS in Paris
2000-2001 Post doctoral Researcher, supervisor: Cees Dekker, Delft
1999-2000 Post doctoral Researcher, supervisor: Paul McEuen, Berkeley
1996-1999 PhD Researcher, supervisor: Christian Shönenberger, Basel

AWARDS & DISTINCTIONS

2017 APS Fellow
2016 Advanced grant ERC
2011 Starting Grant ERC
2005 EURYI award of the European Commission
2004 medal of the CNRS
2001 First author of the paper selected as the scientific breakthrough of the year by *Science*
2000 IBM award of the Swiss Physical Society

RESEARCH FIELD

Nano-mechanics, Nano-electronics; mesoscopic physics at the nanoscale
Physical systems: carbon nanotubes, graphene, monolayer semiconductors
High-precision radio-frequency measurements at low and ultra-low temperatures
Optical and scanning confocal microscopy measurements at low temperature
Fabrication of ultra-clean nano-systems and nano-devices

PUBLICATIONS (October 2017)

81 publications, including 3 in *Science*, 9 in *Nature* family, 9 in *Nano Letter*, 17 in *PRL*.
Total number of citations: 8824 (ISI)
H-factor: 37 (ISI)
Publication list can be found at
<https://scholar.google.fr/citations?user=rynXRTQAAAAJ>

MAJOR SCIENTIFIC ACHIEVEMENTS

- 1- Unraveling the non-linear dissipation mechanism in nanomechanical resonators (2017).
- 2- Measurements of record high quality factors and thermal force noise at the level of $1 \text{ zN/Hz}^{0.5}$ in nanoscale resonators (2014).
- 3- First measurements of the Brownian motion of nanoscale resonators at helium temperature (2013).
- 4- First measurements of inertial mass sensing with a resolution at the 1 yg level (2012).
- 5- First observation of nonlinear dissipation at the nanoscale (2011).
- 6- Demonstration of the first coupling between quantum electron transport and mechanical vibrations in suspended carbon nanotubes (2009).
- 7- Demonstrate of the first actuation of a motor at the nanoscale by means of a thermal gradient (2008)
- 8- Development of the current-induced cleaning method of graphene for ultra high-mobility (2007).
- 9- First experimental test of the multi-terminal Landauer-Büttiker theory in one dimension (2004).
- 10- First experimental demonstration of a logic circuit based on individual molecular systems (2001).
- 11- First scanning probe microscopy experiments of quantum electron transport in nanotubes (2000).
- 12- First measurements of Aharonov-Bohm quantum oscillations at the molecular level (1999).

PRESENTATIONS

- 89 invited talks at international conferences/workshops, 62 seminars/colloquiums

OTHER CONTRIBUTIONS

Supervised 15 PhD students and postdocs. 11 out of them have now a permanent position in academic research.

Active involvement in the creation of the Catalan Institute of Nanoscience and Nanotechnology (ICN2)

Council member of the GDRI graphene nanotubes (from 2016)

Organization of international conferences:

- 2017 FNS2017 in La Thuile (principal organizer)
- 2016 conference in honor of Christian Schonberger in Basel (co-organizer)
- 2016 summer school "Quantum Nano- and Opto-mechanics" in Barcelona (co-organizer)
- 2012 workshop "NEMS-Barcelona" (principal organizer)
- 2010 symposium S of MRS in San Francisco (co-organizer)
- 2009 conference "Science & Applications of graphene and nanotubes" Coma-Ruga (principal organizer)
- 2007 symposium L of E-MRS in Strasbourg (co-organizer)

Member of conference advisory boards, including IWEPNM in Kirchberg (from 2006 to 2017), graphene2012, and NT10 conference