

Cecilia Noguez

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Full Professor (Inv. Titular C, SNI III, PRIDE D)
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SYNOPSIS

Cecilia Noguez is a Professor of Physics at Universidad Nacional Autónoma de México (UNAM) and is recognized as one of the leading theoreticians in Mexico in the area of numerical modeling of nanoscale materials, atomic clusters, and surfaces. Her area of research includes studies to predict and understand the atomic, electronic, and optical properties of nanomaterials, as well as their functionalization, combining first-principles and electromagnetic theories in plasmonics, carbon nanostructures, low-dimensional semiconductors, atomic adsorption processes, van der Waals and Casimir forces, self-assembling, among others. Additionally, she has developed new computational codes to study large-scale nanostructures. She has published over 58 journal papers in high-impact journals such as Physical Review Letters, Chemical Society Reviews, Journal of the American Chemical Society, The Journal of Physical Chemistry, and Physical Review B, among others, which have received more than 1050 citations.

EDUCATION

- Postdoctoral Research Assistant, Dept. Physics & Astronomy, Ohio Univ. 08/95–07/96
- Ph. D. in Physics, Facultad de Ciencias, UNAM 07/1995. Solid State Physics.
- Visiting Graduate Student, Ohio University, 07/1994 – 05/1995
- Visiting Graduate Student, University of Rome II, Italy, 04/1993 – 07/1994
- M.Sc. in Physics, Facultad de Ciencias, UNAM 01/1993. Solid State Physics.
- Bs. in Physics, Facultad de Ciencias, UNAM 05/1990. Solid State Physics.

POSITIONS HELD

Visiting Professor	Northwestern University	08/2010 – 07/2011
Researcher C (Professor)	Instituto de Física, UNAM	08/2005 – present
Researcher B (Associate Professor)	Instituto de Física, UNAM	06/2003 – 08/2005
Visiting Professor	Ohio University	08/2000 – 12/2000
Researcher A (Assistant Professor)	Instituto de Física, UNAM	11/1999 – 06/2003
Associate Researcher C	Instituto de Física, UNAM	10/1995 – 11/1999

HONORS and AWARDS

- Heberto Castillo Martinez, Mexico City Award 2010, Distinguished Woman Scientist (under 45 years old).
- Mexican Academy of Science Award 2009, Basic Research in Exact Sciences.
- Thomson Reuters Award (Institute for Scientific Information) to the most cited Mexican contribution in Chemistry (Nanoscience) in the last decade, Sept. 2009.
- Award to the direction of the best doctoral thesis in Material Science 2008, IIM-UNAM (AL Gonzalez Ronquillo)
- Award to the direction of the best doctoral thesis in Material Science 2006, IIM-UNAM (X Lopez Lozano)
- Distinguished University Young Professor in Basic Research in Exact Sciences 2006, UNAM
- Gabino Barreda Medal for the best Ph. D. student, UNAM 1996
- Weizmann Prize 1996, for the best Ph. D. thesis in Exact Science. Mexican Academy of Science.
- Highlight publication 1996–1997, by the National Institute on Physics of Materials, Italy.
- “Ricardo J. Zevada Foundation” research support for young scientists, 1999.
- Member of the national research system (SNI).
- Member of the Mexican Academy of Science.

12 GRANTS OBTAINED as PI or Co-PI since 1994. Last 3:

- *Optical properties of nanoparticles* CONACyT 2007 – 2009 (\$ 790,000.00 mexican pesos). PI
- *Optical properties of chiral nanostructures* DGAPA. 2008–2010 (\$ 527,890.00 mexican pesos). PI
- *Surface Plasmon Resonances in 1D- and 2D- Arrays of Metal Nanoparticles for the Control of Enhanced Spectroscopies*, Air Force Office of Scientific Research, 2009-2010. (\$25,000 USD). PI

TEACHING (44 courses)

- 29 courses at the undergraduate level: Classical electrodynamics, Solid State Physics, Computational Physics, Theoretical Physics: thermodynamics, Modern Physics (Advanced Quantum Mechanics), Classical Mechanics, etc.

- 9 courses at the graduate level: Solid State Physics, Electrodynamics, Computational Physics, Quantum Mechanics, Physics of Nanomaterials, etc. and 6 Special courses.

FORMER and CURRENT STUDENTS

Graduate advisor: C E Roman-Velazquez, Xochitl Lopez-Lozano, Ana Lilia Gonzalez, A Sanchez-Castillo, Ivan Sosa, Francisco J. Hidalgo, Ali M. Angulo

B. Sc. advisor: Martin Solis Perez, Alejandro Valderrama, Ali M Angulo M.

Postdoctoral advisor: A Sanchez-Castillo, G Rodriguez-Gattorno, C E Roman-Velazquez, G P. Ortiz

SEMINARS AND COLLOQUIA

More than 160 presentations. More than 72 seminars, colloquia, and invited presentations. 16 presentations of popular science.

LAST 5 INVITED TALKS AND SEMINARS

- Colloquium (scheduled) at Northwestern University, Materials Research Center, January 20th, 2011
- Colloquium at University of Notre Dame, Department of Chemistry and Biochemistry December 9th, 2010
- Plenary Lecture at Molecular Modelling 2010: Advances in Biomolecular and Materials Modelling, Melbourne, Australia from the 28th November to 1st December, 2010
- Colloquium at Department of Physics and Advanced Materials, University of Technology, Sydney November 23, 2010.
- Invited talk, SPIE's Photonics Europe, Nanophotonics, Brussels, Belgium 12 –16 April 2010

5 RELEVANT JOURNAL PUBLICATIONS

- *On the origin of the optical activity displayed by chiral-ligand-protected metallic nanoclusters*, A. Sanchez-Castillo, **Cecilia Noguez**, I. L. Garzón, J. Am. Chem. Soc. (Communication) **132**, 1504-1505.(2010)
- *Surface Plasmons on Metal Nanoparticles: The Influence of Shape and Physical Environment* **Cecilia Noguez**, Journal of Physical Chemistry C (Feature Article) **111** (10) 3806 – 3819 (2007).
- *Optical Properties of Isolated and Supported Metal Nanoparticles*, **Cecilia Noguez**, Optical Materials **27**, 1204 (2005).
- *Optical Properties of Metal Nanoparticles with Arbitrary Shapes*, Iván O Sosa, **Cecilia Noguez**, and Rubén G Barrera, Journal of Physical Chemistry B **107**, 6269 – 6275 (2003).
- *Theoretical and experimental optical spectroscopy study of hydrogen adsorption at Si(111) – 7 × 7*, **Cecilia Noguez**, C Beitia, W Preyss, AI Shkrebtii, M Roy, Y Borensztein, R Del Sole, Physical Review Letters **76**, 4923 (1996).

OTHER 5 RECENT PUBLICATIONS

- *Optically active nanoparticles: fullerenes, carbon nanotubes, and metal nanoparticles* F. Hidalgo, **Cecilia Noguez**, Physica Status Solidi B (Topical Review). **247**, 18891897 (2010)
- *Understanding optical activity in single-wall carbon nanotubes from first-principles studies* A. Sanchez-Castillo, **Cecilia Noguez**, J Phys. Chem. **C114**, 9640 (2010)
- *Optically active nanoparticles*, **Cecilia Noguez**, I.L. Garzón, Chemical Society Reviews **38**, 757 – 771 (2009).
- *Theoretical Study of Surface Plasmon Resonances in Hollow Gold-Silver Double-shell Nanostructures*, C.E. Román-Velázquez, **Cecilia Noguez**, J.J. Zhang, Journal of Physical Chemistry C **113** 4068 – 4074 (2009).
- *Efficient First-Principles Method for Circular Dichroism of Nanostructures*, F. Hidalgo, A. Sánchez-Castillo, **Cecilia Noguez**, Physical Review B **79**, 075438 (2009).

SOME SYNERGISTIC ACTIVITIES

- Chair of the Meeting on Optics of Surfaces and Interfaces (September 2011).
- Co-chair of the XV International Symposium on Small Particles and Inorganic Clusters (September 2010).
- Vice-chair of the Nanoscience Division of the Mexican Physical Society (2008-2010).
- Scientific Advisory Board of the National Nanoscience Network (CONACyT-Mexico) (2009-present).
- Co-chair of the Network of Research Groups in Nanoscience at UNAM (2003-present).
- Reviewer of more than 36 international journals including: Nature Nanomaterials, Physical Review B, Physical Review Letters, Chemistry of Materials, Journal of Physical Chemistry, J. Am. Chem. Society, etc.
- Reviewer of support agencies and universities, such as, NSF, CONACyT, DGAPA, UNAM, Universidad Autónoma de Puebla, The Netherlands Foundation for Fundamental Research on Matter, Universidad Nacional de Colombia, etc.
- Scientific Advisory Board of: SCIYO and NANOPOLIS .
- Steering Group Member of: ICPCNanoNet, National Nanoscience and Nanotechnology Network.