IGNACIO L. GARZÓN, Ph. D.
Professor

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SYNOPSIS

Prof. Garzón is a Professor of Physics at Universidad Nacional Autónoma de México and is recognized as one of the leading theoreticians in Mexico in the area of numerical modeling of nanosystems and atomic clusters. His area of research includes theoretical studies on the shape and morphology of metal clusters in order to predict and understand their electronic, optical, and other physical and chemical properties, combining genetic algorithms and many-body potentials (to perform global structural optimizations), with first-principles density functional theory (to confirm stability and energy ordering of the local minima); chirality in gold clusters and chirality index calculations; and structural distortion in ligand-protected gold clusters. He has published over 60 journal papers in high-impact journals such as *Physical Review Letters*, *Chemical Society Reviews,* the *Journal of Physical Chemistry*, and *Physical Review B*, among others. Prof. Garzón is a member of the Mexican Academy of Sciences.

POSITIONS HELD

2003 – 2006 ♦ Chair, Department of Complex Systems ♦ Institute of Physics
1999 – present ♦ Professor of Physics ♦ Universidad Nacional Autónoma de México
1991 – 1998 ♦ Associate Professor ♦ Universidad Nacional Autónoma de México
1985 – 1990 ♦ Assistant Professor ♦ Universidad Nacional Autónoma de México

EDUCATION

University of California, San Diego
Department of Chemistry and Biochemistry
Postdoctoral Research Associate, 1985-1986
Advisor: Dr. John H. Weare

Universidad Nacional Autónoma de México
Graduation Date: 1981/1984
Degree: M.S./Ph.D in Physics
Advisor: Dr. Estela Blaisten-Barojas
Dissertation: IR Absorption Spectra of Diatomic Molecules in Dense Media.

Universidad Nacional Autónoma de México
Graduation Date: 1980
Degree: B.S. in Physics

PROFESSIONAL AFFILIATIONS

Sociedad Mexicana de Física
Academia Mexicana de Ciencias
Academia Mexicana de Ciencia de Materiales
American Chemical Society
American Physical Society

HONORS

National Scientist (Mexican Science Council) awarded in 1988.
Jorge Lomnitz Adler Prize (Mexican Academy of Science) awarded in 2000.
Marcos Moshinsky Medal (UNAM) awarded in 2006.

SYNERGISTIC ACTIVITIES

- Co-chair of the Network of Research Groups in Nanoscience at UNAM (2004-present).
- Chair (Executive Committee) Nanoscience Division of the Mexican Physical Society (2008-2010).
- Chairman and Member of the International Advisory Committee of the XV International Symposium on Small Particles and Inorganic Clusters (September 2010).
- Co-Chair of the Symposium on Metallic Clusters and Related Systems at the Fall 2009 American Chemical Society National Meeting.

RELEVANT JOURNAL PUBLICATIONS

1. C. Noguez and I.L. Garzón, "Optically Active Metal Nanoparticles," *Chemical Society Reviews*, **38** [3] 757-771 (2009).
2. X. López-Lozano, L.A. Pérez, and I.L. Garzón, "Enantiospecific adsorption of chiral molecules on chiral Au clusters," *Physical Review Letters*, **97** (2006) 233401.
3. I.L. Garzón, C. Rovira , K. Michaelian, M.R. Beltrán, J. Junquera,P. Ordejón, E. Artacho, D. Sánchez-Portal, and J.M. Soler, "Do Thiols Merely Passivate Gold Nanoclusters ?" *Physical Review Letters* **85**, (2000) 5290.
4. K. Michaelian, N. Rendón, and I.L. Garzón, "Structure and Energetics of Ni, Ag, and Au Nanoclusters," *Physical Review B*, **60**, (1999) 2000.
5. I.L. Garzón, K. Michaelian, M.R. Beltrán, A. Posada-Amarillas, P. Ordejón, E. Artacho, D. Sánchez-Portal, and J.M. Soler. "Lowest Energy Structures of Gold Nanoclusters" *Physical Review Letters*, **81**, (1998) 1600.

OTHER PUBLICATIONS

1. I.E. Santizo, F. Hidalgo, L.A. Pérez, C. Noguez, and I.L. Garzón, "Intrinsic chirality of bare gold nanoclusters: the Au_{34}^- case," *Journal of Physical Chemistry C*, **112** [45] 17533-17539 (2008).
2. R.J.C. Batista, M.S.C. Mazzoni, I.L. Garzón, M.R. Beltrán, and H. Chacham, "Electron states in a lattice of Au nanoparticles: the role of strain and functionalization," *Physical Review Letters*, **96** (2006) 116802.
3. X. Xing, R.M. Danell, I.L. Garzón, K. Michaelian, M.N. Blom, M.M. Burns, and J.H. Parks, "Size-dependent fivefold and icosahedral symmetry in silver clusters," *Physical Review B*, **72** (2005) 081405.
4. E.M. Fernández, J.M. Soler, I.L. Garzón, and L.C. Balbás, "Trends in the structure and bonding of neutral and charged noble metal clusters," *Physical Review B*, **70** (2004) 165403.
5. C.E. Román-Velasquez, C. Noguez, and I.L. Garzón, "Circular dichroism simulated spectra of chiral gold nanoclusters: a dipole approximation," *Journal of Physical Chemistry B*, **107** [44] 12305-12038 (2003).

FORMER and CURRENT GRADUATE STUDENTS

Graduate Students: Carlos E. Román, Alvaro Posada Amarillas, Juan Andrés Reyes Nava, Israel Gutiérrez González, José de Jesús Pelayo, and Huziel E. Sauceda.

Postdoctoral Scholars: Graciela Bravo Pérez, Xóchitl López Lozano, and Zhi Ji.

COLLABORATORS and CO-EDITORS

Ronaldo J.C. Batista (Universidade Federal de Minas Gerais), Mario S.C. Mazzoni (Universidade Federal de Minas Gerais), Helio Chacham (Universidade Federal de Minas Gerais), Marcela R. Beltrán (UNAM), Luis A. Pérez (UNAM), Alvaro Posada-Amarillas (Universidad de Sonora), Efraín Urrutia-Bañuelos (Universidad de Sonora), and Cecilia Noguez (UNAM).