

## BIOGRAPHICAL SKETCH – Ivan. K. Schuller

---

### Education and Training

University of Chile, Santiago, Chile	Physics	Licenciado en Ciencias	1970
Northwestern University, Chicago, IL	Physics	M.S.	1972
Northwestern University, Chicago, IL	Physics	Ph.D.	1976

### Research and Professional Experience

Professor of Physics, Physics Dept. Univ. of California, San Diego	1987-present
Professor, Universidad del Valle, Cali, Colombia	1997-2012
Argonne National Laboratory: Special Term Appointee	1987-1996
Visiting Professor, Catholic University, Leuven, Belgium	1984-1994
Visiting Professor, Catholic University, Santiago, Chile	1982-2012
Argonne National Laboratory: Senior Physicist, Group Leader	1978-1987
Adjunct Assistant Professor, Univ. of California, Los Angeles	1976-1978

### Publications

1. Ivan K. Schuller, *Molecular Dynamics Simulation of Epitaxial Growth*, MRS Bulletin **XIII-11**, 23 (1988).
2. R. Cauro, A. Gilabert, J.P. Contour, R. Lyonnet, M.G. Medici, J.C. Grenet, C. Leighton, Ivan K. Schuller, *Persistent and Transient Photoconductivity in Oxygen Deficient  $La_{2/3}Sr_{1/3}MnO_{3-\delta}$  Thin Films*, Phys. Rev. B **63**, 174423 (2001).
3. V. Peña, T. Gredig, J. Santamaria, Ivan K. Schuller, *Interfacially Controlled Transient Photoinduced Superconductivity*, Phys. Rev. Lett. **97**, 177005 (2006).
4. A. Porat, S. Bar-Ad, I.K. Schuller, *Novel Laser-Induced Dynamics in Exchange-Biased Systems*, Euro. Phys. Lett. **87**, 67001 (2009).
5. A. Zimmers, L. Aigouy, M. Mortier, A. Sharoni, Siming Wang, K.G. West, J.G. Ramirez, Ivan K. Schuller, *Role of Thermal Heating on the Voltage Induced Insulator-Metal Transition in  $VO_2$* , Phys. Rev. Lett. **110**, 056601 (2013).
6. Siming Wang, Juan Gabriel Ramirez, Ivan K. Schuller, *Avalanches in Vanadium Sesquioxide Nanodevices*, Phys. Rev. B, **92**, 085150 (2015).
7. Ivan K. Schuller, Rick Stevens, *Neuromorphic Computing: From Materials to Systems Architecture*, Report for the US Department of Energy, [http://science.energy.gov/~media/bes/pdf/reports/2016/NCFMtSA\\_rpt.pdf](http://science.energy.gov/~media/bes/pdf/reports/2016/NCFMtSA_rpt.pdf) (2015)
8. Siming Wang, Juan Gabriel Ramirez, Jonathan Jeffet, Shimshon Bar-Ad, Dan Huppert, Ivan K. Schuller, *Ultrafast Photo-Induced Dynamics Across the Metal-Insulator Transition of  $VO_2$* , Europhysics Lett. **118**, 27005 (2017).
9. Elsa Abreu, Stephanie N. Gilbert Corder, Sun-Jin Yun, Siming Wang, Juan Gabriel Ramirez, Kevin West, Jingdi Zhang, Salinporn Kittiwatanakul, Ivan K. Schuller, Jiwei Lu, Stuart A. Wolf, Hyun-Tak Kim, Mengkun Kiu, Richard D. Averitt, *Ultrafast Electron-Lattice Coupling Dynamics in  $VO_2$  and  $V_2O_3$  Thin Films*, Phys. Rev. B, **96**, 094309 (2017).
10. J. Trastoy, I. K. Schuller, *Criticality in the Brain: Evidence and Implications for Neuromorphic Computing*, ACS Chem. Neurosci. **9**, 1254(2018)

### Major Awards - Citations

1. *US-Department of Energy-Outstanding Accomplishment in Solid State Physics - 1988*  
For the determination of the structure of the high temperature ceramic oxide  $YBa_2Cu_3O_7$ .

2. *American Physical Society-Wheatley Award - 1999*  
For his dedication to the development of physics at the frontier level in Latin America, China and India; for his efforts in organizing international events and building strong bridges to connect people, ideas, and resources from around the world; and for his results as an imaginative physicist and a close collaborator with young physicists in developing countries.
3. *Alexander von Humboldt Stiftung-Forschungspreis - 2002*  
In recognition of his numerous research accomplishments in the field of metallic superlattices, which he initiated. His recent outstanding research achievements in the area of transport, exchange coupling and proximity effects in magnetic nanostructures, have stimulated the field of magneto electronics.
4. *Materials Research Society-Medal - 2003*  
For his innovative studies of exchange bias in magnetic heterostructures and nanostructures.
5. *American Physical Society-Adler Award - 2003*  
For research in metallic heterostructures and superlattices, communicated with unusual enthusiasm and eloquence.
6. *US-Department of Energy-Lawrence Award - 2004*  
For creating the field of metallic superlattices and recognizing the impact of these materials on magnetism and superconductivity.
7. *International Union of Materials Research Societies-Somiya Award - 2007*  
Structure and Physical Properties of Superconducting and Magnetic Nanostructures.
8. *Corresponding Member - Academies of Science*  
Chile (1992), Belgium (1998), Spain (2006), Colombia (2013).
9. *IEEE Magnetics Society - 2015*  
Distinguished Lecturer-help lead their fields in new technical developments that shape the global community.
10. *Göteborgs and Chalmers Universities, Royal Swedish Academies-Lise Meitner Award - 2015*  
For his contributions to physics and in particular for “creating the field of metallic superlattices and recognizing its impact on magnetism and superconductivity.”
11. *US Department of Defense-Vannevar Bush Fellow - 2015*  
Bio-Inspired Functional Hybrids: A New Paradigm for Solid State Devices.
12. *American Academy of Arts and Sciences-2018*
13. *American Physical Society-2018 March Meeting- Kavli Lecture on “Neuromorphic Computing”*,

#### **Advisory Committees**

1. President of the Board of Trustees and Chair of the Scientific Advisory Board, Instituto Madrileño de Estudios Avanzados (IMDEA) Nanociencia, Madrid, Spain.
2. Chair of the Scientific Advisory Board, Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile.
3. Scientific Advisory Panel, Groningen Center for Cognitive Systems and Materials, Groningen, Holland.
4. Advisory Council, NanoTechNexus, Non-Profit Organization.
5. International Advisory Board, Korean Magnetics Society.

### **Synergistic Activities**

1. Director, Center for Advanced Nanoscience (CAN)-UCSD.
2. Development of SUPREX and MIST structural programs. Free download.
3. Production of award winning Nanoscience Movie “When Things Get Small”, 10 YouTube nanoscience videos.
4. Numerous scientific and advisory committees for Nanoscience Centers (Spain, Chile, Colombia, US), DOE, NSF, DOD, APS, MRS, and international conferences.
5. Numerous public lectures in Science Museums in the US and abroad.