

## Professors

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[JUAN CARLOS CUEVAS](#) Professor  
[Theoretical Nanophysics Group](#)

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### Biographical Info

June 1993: Physics degree, Universidad Autónoma de Madrid, Spain.

March 1999: PhD in Physics. Supervisors: Alvaro Martín Roderó and Alfredo Levy Yeyati, Universidad Autónoma de Madrid, Spain. Topic: "Electronic transport through normal and superconducting nanostructures".

November 1999 - December 2000: Post-doc with an "Individual Marie Curie Fellowship" in the group of [Gerd Schön](#), Universität Karlsruhe, Germany.

January 2001 - October 2003: Post-doc in the group of [Gerd Schön](#), Universität Karlsruhe, Germany.

November 2003 — December 2007: Head of the Junior Research Group (Nachwuchsgruppe) on Theoretical Aspects of Molecular Electronics within the [Institut für Theoretische Festkörperphysik](#) of the [Universität Karlsruhe](#).

October 2004 — December 2006: Associate professor (replacement) in the Department of Theoretical Condensed Matter Physics of the Universidad Autónoma de Madrid (Spain).

January 2007 — present: Associate professor (permanent position) in the Department of Theoretical Condensed Matter Physics of the Universidad Autónoma de Madrid (Spain).

### Honors and Awards

Marie Curie Individual Fellowship of the European Union (granted in March 1999) for the realization of a postdoctoral stay in the Universität Karlsruhe (Germany).

Prize of the Universidad Autónoma de Madrid for outstanding thesis work (2000).

Grant: "Junior Research Group (Nachwuchsgruppe)" in theoretical aspects of

molecular electronics (2003). Agency: "Helmholtz Gemeinschaft", German state. "Tina Ulmer Prize for Teaching" together with Prof. Elke Scheer for our teaching performance. Prize awarded by the The foundation Science and Society in the University of Konstanz.

#### Research Interests

Molecular electronics.

Transport properties of superconducting nanostructures.

Spintronics.

Nanoplasmonics.

#### Relevant/Recent Publications

Peltier cooling in molecular junctions, L. Cui, R. Miao, K. Wang, D. Thompson, L.A. Zotti, J.C. Cuevas, E. Meyhofer, P. Reddy, *Nature Nanotechnology* 13, 122 (2018).

[\[URL\]](#)

Quantized thermal transport in single-atom junctions, L. Cui, W. Jeong, S. Hur, M. Matt, J.C Klöckner, F. Pauly, J.C. Cuevas, E. Meyhofer, P. Reddy, *Science* 355, 1192 (2017). [\[URL\]](#)

Radiative heat transfer in the extreme near field, K. Kim, B. Song, V. Fernández-Hurtado, W. Lee, W. Jeong, L. Cui, D. Thompson, J. Feist, M.T.H. Reid, F.J. Garcia-Vidal, J.C. Cuevas, E. Meyhofer, P. Reddy. *Nature* 528, 387 (2015). [\[URL\]](#)

Direct observation of Josephson vortex cores, D. Roditchev, C. Brun, L. Serrier-Garcia, J.C. Cuevas, V.H.L. Bessa, M.V. Milosevic, F. Debontridder, V. Stolyarov, T. Cren. *Nature Physics* 11, 332 (2015). [\[URL\]](#)

Enhancement of near-field radiative heat transfer in polar dielectric thin films, B. Song, Y. Ganjeh, S. Sadat, D. Thompson, A. Fiorino, V. Fernández-Hurtado, J. Feist, F.J. Garcia-Vidal, J.C. Cuevas, P. Reddy, E. Meyhofer. *Nature Nanotechnology* 10, 253 (2015). [\[URL\]](#)

Long-range charge transport in single G-quadruplex DNA molecules, G. I. Livshits, A. Stern, D. Rotem, N. Borovok, G. Eidelstein, A. Migliore, E. Penzo, S. J. Wind, R. Di Felice, S. S. Skourtis, J.C. Cuevas, L. Gurevich, A. B. Kotlyar, D. Porath. *Nature Nanotechnology* 9, 1040 (2014). [\[URL\]](#)

A current-driven single-atom memory, C. Schirm, M. Matt, F. Pauly, J.C. Cuevas, P. Nielaba and E. Scheer, *Nature Nanotechnology* 8, 645 (2013). [\[URL\]](#)

Heat dissipation in atomic-scale junctions, W. Lee, K. Kim, W. Jeong, L.A. Zotti, F. Pauly, J.C. Cuevas, and P. Reddy, *Nature* 498, 209 (2013). [\[URL\]](#)

Molecular Electronics: An Introduction to Theory and Experiment, J. C. Cuevas and E. Scheer, World Scientific Publishers (2010). [\[URL\]](#)

Optical rectification and field enhancement in a plasmonic nanogap, D.R. Ward, F. Hüser, F. Pauly, J.C. Cuevas, and D. Natelson, *Nature Nanotechnology* 5, 732 (2010). [\[URL\]](#)

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