

ROLANDO VALDÉS AGUILAR

Professional Preparation

Monterrey Institute of Technology	Monterrey, NL, Mexico	Engineering Physics	B.Sc., 2002
University of Maryland	College Park, MD	Physics	M.S., 2007
University of Maryland	College Park, MD	Physics	Ph.D., 2008
Johns Hopkins University	Baltimore, MD	Physics & Astronomy	Postdoctoral Fellow, 2008–2012
Los Alamos National Laboratory	Los Alamos, NM	Postdoctoral Scholar	2012–2013

Appointments

Assistant Professor, The Ohio State University	January 2014 – present
Postdoctoral Scholar, Los Alamos National Laboratory	2012–2013
Postdoctoral Fellow, Johns Hopkins University	2008–2012

Products

(i) Five products most closely related to the proposed project

1. C.M. Morris, R. Valdés Aguilar, A. Ghosh, S.M. Koochpayeh, S.M. Krizan, R.J. Cava, O. Tchernyshyov, T.M. McQueen, N.P. Armitage, “Hierarchy of bound states in the one-dimensional ferromagnetic Ising chain CoNb_2O_6 investigated by high-resolution time-domain terahertz spectroscopy,” *Physical Review Letters*, **112**, 137403 (2014).
2. L. Wu, M. Brahlek, R. Valdés Aguilar, A. V. Stier, C. M. Morris, Y. Lubashevsky, L. S. Bilbro, N. Bansal, S. Oh, N. P. Armitage, “A sudden collapse in the transport lifetime across the topological phase transition in $(\text{Bi}_{1-x}\text{In}_x)_2\text{Se}_3$,” *Nature Physics*, **9**, 410-414 (2013).
3. R. Valdés Aguilar, A. V. Stier, W. Liu, L. S. Bilbro, D. K. George, N. Bansal, L. Wu, J. Cerne, A. G. Markelz, S. Oh, N. P. Armitage, “THz response and colossal Kerr rotation from the surface states in the topological insulator Bi_2Se_3 ,” *Physical Review Letters*, **108**, 087403 (2012).
4. R. Valdés Aguilar, M. Mostovoy, A. B. Sushkov, S-W. Cheong, H. D. Drew, “Origin of electromagnon excitations in multiferroic RMnO_3 ,” *Physical Review Letters*, **102**, 047203 (2009).
5. A. B. Sushkov, R. Valdés Aguilar, S. Park, S-W. Cheong, H. D. Drew, “Electromagnons in Multiferroic YMn_2O_5 and TbMn_2O_5 ,” *Physical Review Letters*, **98**, 027202 (2007).

(ii) Five other significant products

1. R. Valdés Aguilar, J. Qi, M. Brahlek, N. Bansal, A. Azad, J. Bowlan, S. Oh, A.J. Taylor, R.P. Prasankumar, D.A. Yarotski, “Time-resolved terahertz dynamics in thin films of the topological insulator Bi_2Se_3 ,” *Applied Physics Letters*, **106**, 011901 (2015).
2. C. M. Morris, R. Valdés Aguilar, A. V. Stier, N. P. Armitage, “Polarization modulation time domain THz polarimetry,” *Optics Express*, **20**, 12303 (2012).
3. W. Liu, R. Valdés Aguilar, Y. Hao, R. S. Ruoff, N. P. Armitage, “Broadband microwave and time-domain terahertz spectroscopy on chemical vapor deposition grown graphene,” *Journal of Applied Physics*, **110**, 083510 (2011).
4. L. S. Bilbro, R. Valdés Aguilar, G. Logvenov, O. Pelleg, I. Bozovic, N. P. Armitage, “On the possibility of fast vortices in the cuprates: A vortex plasma model analysis of THz conductivity and diamagnetism in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$,” *Physical Review B*, **84**, 100511 (2011).
5. L. S. Bilbro, R. Valdés Aguilar, G. Logvenov, O. Pelleg, I. Bozovic, N. P. Armitage, “Temporal correlations of superconductivity above the transition temperature in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ probed by terahertz spectroscopy,” *Nature Physics*, **7**, 298-302 (2011).

Synergistic Activities

1. Invited Talks at Conferences (i) MRS Spring Meeting, San Francisco, CA. April 2015. (ii) CINT User Conference, Santa Fe, NM. September 2013. (iii) E-MRS. Symposium D: Electronic and magnetic structure of ferropnictide high-Tc superconductors and related compounds. Warsaw, Poland. September 2011. (iv) APS March Meeting, Pittsburgh, PA. March 2009. (v) Low Energy Electrodynamics in Solids. Vancouver, BC. July 2008.
2. Invited Seminars (i) ENCOMM, The Ohio State University. (ii) The Ohio State University, 2015. (iii) University of Minnesota, 2013. (iv) Emory University, 2013. (v) Los Alamos National Laboratory, 2012. (vi) The Johns Hopkins University, 2011. (vii) UNAM, Cuernavaca, México, 2011. (viii) Brookhaven National Laboratory, 2011. (ix) Virginia Tech, 2011. (x) Northwestern University, 2011. (xi) The Johns Hopkins University, 2009. (xii) Towson University, 2009. (xiii) NIST Center for Neutron Research, 2008.
3. Journal Referee: *Physical Review Letters*; *Physical Review B*; *Applied Physics Letters*; *Journal of Physics: Condensed Matter*; *New Journal of Physics*; *Optics Express*; *European Physics Letters*.
4. Outreach: (i) OSU-MRSEC, REU Director. (ii) Lion's Club of Torreón, México, presentation for high school students (2014). (iii) UMD-MRSEC, performed physics demonstrations and mentored middle and high school students. Co-organized Night at the Spy Museum events in 2006 and 2007. (iv) Colloquium Speaker in the ΣΠΣ Honors Society Induction Ceremony at Towson University, 2009.

Collaborators & Other Affiliations

Collaborators & Co-Editors in the last 48 months (51 total in addition to those listed below): N. Peter Armitage (JHU), Namrata Bansal (Rutgers U.), Chung W Bark (Gachon U.), Lucas S Bilbro (Ab Initio), Grace Bosse (JHU), John Bowlan (LANL), Ivan Bozovic (BNL), Mathew Brahlek (Rutgers U.), Collin Broholm (JHU), Robert Cava (Princeton), John Cerne (U. Buffalo), Sang-Wook Cheong (Rutgers U.), YoungJai Choi (Rutgers U.), H. Dennis Drew (U. Maryland), James Eckstein (U. Illinois), Chang-Beom Eom (U. Wisconsin), Deepu K George (U. Buffalo), Arniban Ghosh (JHU), Laura H. Greene (U. Illinois), Yufeng Hao (U. Texas), Erick E Hellstrom (FSU), Jianyi Jiang (FSU), Seyed Koohpayeh (JHU), Jason Krizan (Princeton), David C Larbalestier (FSU), Sanghan Lee (U. Wisconsin), Thomas Lemberger (OSU), Yize Li (Chinese Academy of Sciences-Suzhou), Wei Liu (U. Geneva), Gennady Logvenov (Max Planck Institute-Munich), Yuval Lubashevsky (JHU), Andrea G Markelz (U. Buffalo), Tyrel McQueen (JHU), Christopher M Morris (JHU), Maxim Mostovoy (U. Groningen), Seongshik Oh (Rutgers U.), LiDong Pan (JHU), Oshri Pelleg (BNL), Rohit Prasankumar (LANL), Jingbo Qi (PEAC), Rodney Ruoff (U. Texas), Andreas B Stier (LANL), Andrei B Sushkov (U. Maryland), Antoinette Taylor (LANL), Oleg Tchernyshyov (JHU), Jeremy D Weiss (FSU), Liang Wu (JHU), Jiqiang Yan (ORNL), Fengyuan Yang (OSU), Dmitry Yarotski (LANL), Chenglin Zhang (U. Tennessee).

Graduate Adviser (1 total): H. Dennis Drew, University of Maryland

Postdoctoral Sponsors (3 total): N. Peter Armitage, Johns Hopkins University

Rohit Prasankumar, Los Alamos National Laboratory

Dmitry Yarotski, Los Alamos National Laboratory

Thesis and Post-Graduate Advisees (5 total graduate students, 0 total postdocs). Matthew Warren (OSU), Thuc Mai (OSU), Jack Brangham (OSU), Evan Jasper (OSU), David Dawson (OSU).