Ezekiel Johnston-Halperin
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(a) Professional Preparation

Case Western Reserve University	Cleveland, OH	Physics	B.S. 1996
University of California, Santa Barbara	Santa Barbara, CA	Exp Physics	M.S. 2000
University of California, Santa Barbara	Santa Barbara, CA	Exp Physics	Ph.D. 2003
California Institute of Technology	Pasadena, CA	Postdoctoral Fellow	2003-2006

(b) Appointments

- Associate Professor, The Ohio State University 2012-present
- Co-leader: IRG-1 "Towards Spin-Preserving, Heterogeneous Spin Networks," Center for Emergent Materials, The Ohio State University 2008-2014
- Assistant Professor, The Ohio State University 2006-2012

(c) Products

(i) Products most closely related to proposed project

1. "Low loss spin wave resonances in organic-based ferrimagnet vanadium tetracyanoethelyne thin films," Na Zhu, Xufeng Zhang, I. H. Froning, Michael E. Flatte, E. Johnston-Halperin, and Hong X. Tang, *Applied Physics Letters* 109, 082402 (2016)
2. "Ultra-narrow ferromagnetic resonance in organic-based thin films grown via low temperature chemical vapor deposition," H. Yu, M. Harberts, R. Adur, Y. Lu, P.C. Hammel, E. Johnston-Halperin and A.J. Epstein, *Appl. Phys. Lett.* 105 (1), 012407 (2014)
3. "FMR driven spin pumping and electrical spin injection in silicon-based metal-oxide-semiconductor heterostructures," Y. Pu, P. M. Odenthal, R. Adur, J. Beardsley, A. G. Swartz, D. V. Pelekhov, M. E. Flatté, R. K. Kawakami, J. Pelz, P. C. Hammel, E. Johnston-Halperin, *Phys. Rev. Lett.* 115, 246602 (2015)
4. "Correlation of electrical spin injection and non-linear charge-transport in Fe/MgO/Si," Y. Pu, J. Beardsley, P. M. Odenthal, A. G. Swartz, R. K. Kawakami, P. C. Hammel, E. Johnston-Halperin, J. Sinova and J. P. Pelz, Applied Physics Letters 103 (1), 012402 (2013)
5. "A 160 kBit molecular memory at 100 GBit/cm^2," J.E. Green, J.W. Choi, A. Boukai, Y. Bunimovich, E. Johnston-Halperin, E. DeIonno, Y. Luo, B. A. Sheriff and J. R. Heath, *Nature* 445 414 (2007)

(ii) Other significant products

1. *Organic-Based Magnetically Ordered Films* M. Chilcote, Y. Lu, and E. Johnston-Halperin, (World Scientific, 2018).
2. "Uniform large-area growth of nanotemplated high-quality monolayer MoS2" Justin R. Young, Michael Chilcote, Matthew Barone, Jinsong Xu, Jyoti Katoch, Yunqiu Kelly Luo, Sara Mueller, Thaddeus J. Asel, Susan K. Fullerton-Shirey, Roland Kawakami, Jay A. Gupta, Leonard J. Brillson, and Ezekiel Johnston-Halperin, Applied Physics Letters, **110**, 263103 (2017).
3. "Progress, Challenges, and Opportunities in Two-Dimensional Materials Beyond Graphene," S. Z. Butler, S. M. Hollen, L. Y. Cao, Y. Cui, J. A. Gupta, H. R. Gutierrez, T. F. Heinz, S. S. Hong, J. X. Huang, A. F. Ismach, E. Johnston-Halperin, M. Kuno, V. V. Plashnitsa, R. D. Robinson, R.

S. Ruoff, S. Salahuddin, J. Shan, L. Shi, M. G. Spencer, M. Terrones, W. Windl and J. E. Goldberger, ACS Nano **7** (4), 2898-2926 (2013)
4. "Giant spin Seebeck effect in a non-magnetic material," C. M. Jaworski, R. C. Myers, E. Johnston-Halperin and J. P. Heremans, *Nature* 487 (7406), 210-213 (2012)
5. "Electrical Spin Injection from an Organic-Based Ferrimagnet in a Hybrid Organic-Inorganic Heterostructure," Lei Fang, K. Deniz Bozdag, Chia-Yi Chen, P.A. Truitt, A.J. Epstein and E. Johnston-Halperin, *Phys. Rev. Lett.* 106, 156602 (2011)

(d) Synergistic Activities

- *Co-lead of IRG-1: "Towards Spin-Preserving, Heterogeneous Spin Networks":* Johnston-Halperin served as co-lead of one of the two foundational IRGs in the first successful MRSEC proposal from Ohio State in 2008 (The Center for Emergent Materials, CEM), continuing to serve until the center's first renewal in 2014. As co-lead he was responsible for team building and management, and served on the Executive Committee of the CEM for the 6 years of his tenure where he participated in center-wide decision making on resources, personnel, and strategic planning.
- *PI of NSF EFRI "NewLAW: Voltage-tuned, topologically-protected magnon states for low loss microwave devices and circuits":* Johnston-Halperin is the lead of a 4 PI team including Profs. Kristin Buchanan (Colorado State, Physics), Michael Flatté (U Iowa, Physics), and Hong Tang (Yale), as co-PIs. He is responsible for organizing team discussion and setting strategic directions as well as coordinating communication with the funding agency and the scientific community.
- *Director of the Center for the Exploration of Novel Complex Materials (ENCOMM):* Johnston-Halperin served as ENCOMM Director from 2011 to 2017, coordinating a program focused on building collaborative teams within the Ohio State materials community including activities such as a yearly seed funding program controlling $500,000 in annual direct-dollar awards, cost share for purchase of shared equipment, and a mixed local/national seminar series focused on topics of interest (2011-2017).
- *Mentoring of Minorities and Underrepresented Groups:* Johnston-Halperin is a founding member of the Ohio State University Masters to PhD Bridge Program and was instrumental in securing both internal and external support, including a competitive proposal to the American Physical Society (OSU was one of two Bridge sites selected in 2013). Johnston-Halperin has successfully mentored two Bridge Students of Hispanic ancestry, one of whom is currently pursuing his PhD at Delaware State University and the other is currently pursuing her PhD in Johnston-Halperin's research group.
- *Conference Organization and Journal Review:* Program Chair for PCSI-45. Member of the Program Committee for MMM2013, EMC2015, EMC2016, EP2DS-MSS2017. Peer review of journal manuscripts for Physical Review Letters, Applied Physics Letters, Nature, Physical Review B, NanoLetters, and others (2018).