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**Education:**

University of Colorado at Boulder B.A. 2008 Physics

University of Colorado at Boulder B.S. 2008 Applied Mathematics

Vanderbilt University Ph.D. 2016 Physics

**Professional Experience:**

2019–present R&D Associate, Center for Nanophase Materials Sciences, ORNL

2016–2019 Postdoctoral Research Associate, Center for Nanophase Materials Sciences, ORNL

2012–2016 Graduate Research Assistant, Pantelides Group, Vanderbilt University

2006–2008 Undergraduate Research Assistant, BaBar Collaboration, University of Colorado at Boulder

**Professional Activities, Honors, Awards:**

Group leader for Vanderbilt Students Volunteer for Science outreach initiative, 2011-2012

Presidential Scholar Award from the Microscopy Society of America, 2015

Outstanding PhD Thesis Award from Springer Publishing, 2016

Postdoctoral Research Award from the Microscopy Society of America, 2018

Center for Nanophase Materials Science Postdoctoral Award from Oak Ridge National Laboratory, 2018

Cosslett Award from the Microanalysis Society, 2019

**Professional Memberships:**

Materials Research Society, American Physical Society

**Selected Peer-Reviewed Publications: (total ~ 34, †contributed equally)**

Hachtel, J. A.; Cho, S. Y.; Davidson II, R. B.; Chisholm, M. F.; Haglund, R. F.; Idrobo, J. C.; Pantelides, S. T.; Lawrie, B. J. "Spatially and Spectrally Resolved Orbital Angular Momentum Interactions in Plasmonic Vortex Generators", *Light: Science and Applications* **8**, 33 (2019)

Hachtel, J. A.; Huang, J.; Popovs, I.; Jansone-Popova, S.; Keum, J. K.; Jakowski, J.; Lovejoy, T. C.; Dellby, N.; Krivanek, O. L.; Idrobo, J. C. "Identification of Site-Specific Isotopic Labels by Vibrational Spectroscopy in the Electron Microscope", *Science* **363**, 525 (2019)

Hachtel, J. A.; Idrobo, J. C.; Chi, M. "Sub-Ångstrom Electric Field Measurements on a Universal Detector in a Scanning Transmission Electron Microscope", *Advanced Structural and Chemical Imaging* **4**, 10 (2018)

Susarla, S.†; Hachtel, J. A. †; Yang, X.; Kutana, A.; Apte, A.; Jin, Z.; Vajtai, R.; Idrobo, J. C.; Lou, J.; Yakobson, B. I.; Tiwary, C. S.; Ajayan, P. M. "Thermally Induced 2D Alloy-Heterostructure Transformation in Quaternary Alloys", *Advanced Materials* **30**, 1804218 (2018)

Jokisaari, J. R. †; Hachtel, J. A. †; Hu, X.; Mukherjee, A.; Wang, C.; Konecna, A.; Lovejoy, T. C.; Dellby, N.; Aizpurua, J.; Krivanek, O. L.; Idrobo, J. C.; Klie, R. F. "Vibrational Spectroscopy of Water with High Spatial Resolution", *Advanced Materials* **30**, 1802702 (2018)

Hachtel, J. A.; Lupini, A. R.; Idrobo, J. C. "Exploring the Capabilities of Monochromated Electron Energy Loss Spectroscopy in the Infrared Regime", *Scientific Reports* **8**, 5637 (2018)

Feldman, M. A.; Dumitrescu, E. F.; Bridges, D.; Chisholm, M. F.; Davidson, R. B.; Evans, P. G.; Hachtel, J. A.; Hu, A.; Pooser, R. C.; Haglund, R. F.; Lawrie, B.J. "Colossal Photon Bunching in Quasiparticle-Mediated Nanodiamond Cathodoluminescence", *Physical Review B* **97**, 081404 (2018)

Hachtel, J. A.; Davidson, R. B.; Kovalik, E. R.; Retterer, S. T.; Lupini, A. R.; Haglund, R. F.; Lawrie, B. J.; Pantelides, S. T. "Polarization- and Wavelength-Resolved near-Field Imaging of Complex Plasmonic Modes in Archimedean Nanospirals", *Optics Letters* **43**, 927 (2018)

Susarla, S. †; Kutana, A. †; Hachtel, J. A. †; Kochat, V.; Apte, A.; Vajtai, R.; Idrobo, J. C.; Yakobson, B. I.; Tiwary, C. S.; Ajayan, P. M. "Quaternary 2D Transition Metal Dichalcogenides (TMDs) with Tunable Bandgap", *Advanced Materials* **29**, 1702457 (2017)

Hachtel, J. A.; Marvinney, C.; Mouti, A.; Mayo, D.; Mu, R.; Pennycook, S. J.; Lupini, A. R.; Chisholm, M. F.; Haglund, R. F.; Pantelides, S. T. "Probing Plasmons in Three Dimensions by Combining Complementary Spectroscopies in a Scanning Transmission Electron Microscope", *Nanotechnology* **27**, 155202 (2016)

**Collaborators (previous 4 years):**

Yevgeniy Puzyrev, AT&T

Javier Aizpurua, CSIC-UPV/EHU and DIPC

Daniel Mayo, Fisk University

Kirill Bolotin, Freie Universitat Berlin

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Anna Laromaine, ICMAB-CSIC

Jaume Gazquez, ICMAB-CSIC

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Jerome Mitard, Imec

Chandra Sekhar Tiwary, Indian Institute of Technology, Kharagpur

Lianjie Xue, Kansas State University

James Edgar, Kansas State University

Cong Su, Massachusetts Institute of Technology

Guo Xing Duan, Micron

Stephen Pennycook, National University of Singapore

Roderick Davidson, Naval Research Laboratory

Daniel Ratchford, Naval Research Laboratory

Sang Yeon Cho, New Mexico State University

Tracy Lovejoy, Nion R&D

Niklas Dellby, Nion R&D

Ondrej Krivanek, Nion R&D

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Jagdish Narayan, North Carolina State University

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Debjit Ghoshal, Rensselaer Polytechnic Institute

Tushar Gupta, Rensselaer Polytechnic Institute

Nikhil Koratkar, Rensselaer Polytechnic Institute

Sandhya Susarla, Rice University

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Amey Apte, Rice University

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Thang Ba Hoang, University of Memphis

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