Curriculum Vitae

Timothy E. Kidd, Ph.D.

Contact:
Physics Department, University of Northern Iowa
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Education :

1995– 2002 : Ph.D. (Physics) University of Illinois at Urbana, Champaign, IL
Thesis : "Photoemission Studies of Charge Density Wave Transitions."
Advisor : Prof. T.-C. Chiang
http://www.physics.uiuc.edu/Research/Publications/theses/copies/Kidd.pdf

1991-1995 : B.S. Engineering Physics University of Illinois at Urbana, Champaign, IL

Employment History:

2005-Present Professor of Physics at the University of Northern Iowa

- PI/Co-PI of over $23M in external grants.
- Leading interdisciplinary team of faculty and students on research in layered materials since 2009
- Procured equipment worth more than $200k for nanoscience curriculum & research
- Supervised 60+ undergraduate and graduate students in research activities
- Supervised five high school teachers in summer research experience
- PI of $85,000 Carver Grant for higher education to update electronics related laboratory classes
- Designed and implemented Robotics course for Upward Bound students
- Integrated computer simulation (Multisim) and sustainability into electronics courses
- Created online robotics course for education (technology and science) and science majors
- Created PLTW Digital Electronics curriculum for future high school teachers
- Created new Labview course in physical computing for future scientists and engineers
- Developed curriculum for nanoscience courses, including a pilot of an advanced nanoscience class
- Created new projects course intended for retention and recruitment of early physics majors
- Research in the synthesis and characterization of low dimensional and nanostructured materials
- Research in alternative energy: Quantum Dot Solar Cells and Hydrogen Storage Materials
- Referee – Physical Review B, PRL, NSF, DOE
- Reviewed chapters for science texts (Introductory Physics, Electronics, Graphene)
- Elected to leadership positions in UNI faculty senate, Society of Physics Students, and Iowa Academy of Sciences

Courses Taught:

Conceptual Physics Laboratory, General Physics I & II, Engineering Physics I, Freshman Projects, Introduction to Electronics, Physical Computing, PLTW Digital Electronics, Statistical Mechanics & Thermodynamics, Electrodynamics, Quantum Mechanics, Physics Seminar, and three Nanoscience courses (Lab & Lecture): Introductory, Intermediate, and Advanced, Robotics and Sensors

2002-2005 Postdoctoral Research Assistant, Physics Department, Brookhaven National Laboratory.

- Angle-resolved photoemission and electron diffraction studies of strongly correlated materials including high-temperature superconductors, Sr_2RuO_4 and 1D materials.
- Design and simulation of ultra-high resolution time-of-flight angle-resolved photoemission spectrometer.

- Supervision and training students and visitors in use of photoemission chamber at U13Ub beamline at NSLS.

1997-2002 Graduate Research Assistant, Department of Physics, University of Illinois at Urbana, Champaign.
- Angle-resolved photoemission studies of surfaces and interfaces.
- Growth and characterization of low dimensional charge density wave compounds.
- Assisted in implementation of new Scienta spectrometer.
- STM studies of Fe whiskers.

1995-1997 Graduate Teaching Assistant, Department of Physics, University of Illinois at Urbana-Champaign.
- Conducted laboratory and discussion sections with various entry level courses for both engineers, physics majors and general science majors in the fields of mechanics and electromagnetism.
- Earned teaching award for excellence in undergraduate education.
- Worked with both traditional and computer-based courses.

1995 Undergraduate Teaching Assistant, Physics Dept. , University of Illinois at Urbana-Champaign.
- Conducted both a laboratory and discussion section for engineering and physics majors in introductory mechanics.

1993-1994 Cooperative-Education research, Naval Research Laboratory in Washington, D.C.
- Performed growth and characterization of tunable dielectric films for high-frequency communication $(Sr,Ba)TiO_3$.
- Growth and characterization of Cerium and Zirconia based barrier films for corrosion resistance of steel.
- Design and creation of an optical rapid thermal annealing furnace.
- Performed various sample creation and characterization techniques involving Sol-Gel growth, scanning-electron microscopy, micro-fluorescence spectroscopy, x-ray diffraction and dielectric and resistivity measurements.

1992-1993 Undergraduate Teaching Aide, University of Illinois at Urbana-Champaign.
- Oversaw computer-based testing for an introductory course in mechanics for physics/engineering majors.

Certifications:

Quality Matters Certified Reviewer and Online Course Developer
CITI Human Subjects Research for Investigators
PLTW DE Instructor for pre-service teachers
Certificate, UNI Innovators Program

Professional & University Service:

2021-2022 Elected Treasurer of UNI United Faculty
2021-2024 Elected Zone 11 Councilor for Society of Physics Students
2017-2018 Re-Elected Faculty Chair
2016-2017 Elected Faculty Chair
2014-2015 Served as Chair of UNI Faculty Senate
2013-2014 Elected Vice-Chair, Chair Elect of the University of Northern Iowa Faculty Senate
2013 Nominated to serve in University Risk Assessment and Intellectual Property Committees
2012-2017 Elected to University of Northern Iowa Faculty Senate
2015-2018 Re-Elected Zone 11 Councilor for Society of Physics Students
2012-2015 Elected Zone 11 Councilor for Society of Physics Students
2011-2012 Elected Chair of the Physics Section of Iowa Academy of Sciences
2009-Present Referee for NSF DMR Proposals and GRFP Fellowships, also referee for DOE proposals
2008-Present Referee for PRL, PRB, ACS, JOVE, NSF, DOE

Awards & Honors:

2019 UNI Regent's Award for Faculty Excellence
2012 HEST Award for Service to the Physics Department of Northern Iowa
2011 Research Highlighted in CNS Faculty Focus Web Site, spring 2011
2011 Nominated for Excellence in Teaching Award by College Dean's Student Advisory Council
2001 Aladdin Lamp Award - Synchrotron Radiation Center in Stoughton, WI.
1997 Incomplete List of Excellent Teaching Assistants

Independent Contract Work:

2020-2021	Grantwriting & Scientific Consultant: Advanced Nanocarbon
2020	Grantwriting Consultant: Exion Labs
2011-2012	Commissioned to write tests for High School Physics Olympics Competitions by USAD
2018-2019	Commissioned to develop online Quantum Mechanics course for Indiana Wesleyan

Grants (Awarded or Pending): [PI except where noted]

External

2006-2009	Battelle Research and Infrastructure Grant	Awarded: $156,500
2007-2008	Iowa Energy Center Research Grant	Awarded: $73,667
2008	Grow Iowa Values Fund	Awarded: $10,000
2009-2012	Iowa Office of Energy Independence	Awarded: $440,000
2009-2011	NSF – MRI	Awarded: $346,000
2011-2013	NSF-MRI [co-PI]	Awarded: $167,950
2011-2012	Carver Trust Award for Instructional Equipment	Awarded: $86,000
2012-2015	NSF RUI Grant [co-PI]	Awarded: $270,000
2012	NASA EPSCoR Research Grant	Awarded: $18,000
2013-2014	NSF-MRI [co-PI]	Awarded: $105,401
2014-2018	NSF-RUI [co-PI]	Awarded: $247,000
2018	NASA ISGC STEM Education	Awarded: $7,000
2019	Carver Trust Award for Instrumentation [co-PI[	Awarded: $574,000
2019	DOE Open Solicitation for Research	Awarded: $328,448
2020	NASA ISGC STEM Education [co=PI]	Awarded: $10.000
2021	NSF EPSCoR Planning Grant	Awarded: $100,000
2021	NASA Seed Grant	Awarded: $85,000
2022	NSF EPSCoR Track I [co-PI]	Awarded: $20,000,000
2022	NSF: RUI – Collaborative [co-PI]	Pending: $450,000
2023	NSF: MRI	Pending: $420.000
2023	NSF: QISE	Pending: 800,000
2023	DOE: Renewal	Pending: 500,000

Internal

2009	UNI Summer Research Fellowship	Awarded; $5,910
2010-2011	UNI 20 Best Internships	Awarded: $4,500
2011	UNI Online Electronics Course Development Award	Awarded: $5,000
2011	UNI Faculty Leadership in Sustainability Education	Awarded: $2,500
2011	UNI Summer Research Fellowship	Awarded; $6,210
2011	UNI PDA for Spring 2013	Zero teaching load for 1 semester
2011-2012	UNI 20 Best Internships	Awarded: $4,500
2012	Iowa NSF EPSCoR Travel Grant	Awarded: $1,500
2013	Regents Innovations Fund	Awarded: $10,000
2013	Iowa NSF EPSCoR Summer Camp Award	Awarded: $13,000
2014	UNI Commercialization Grant [co-PI]	Awarded: $13,500
2014	UNI Sustainability Grant	Awarded: $5,000

2016	UNI Summer Research Fellowship	Awarded: $6,210
2018	UNI 2019 Summer Research Fellowship	Awarded: $7,200
2018	UNI Spring 2020 PDA	Zero teaching load for 1 semester
2019	Upward Bound Course Development	Awarded: $5,000

Professional Memberships:

Society of Physics Students | Sigma Pi Sigma | American Physical Society
Sigma Xi | American Vacuum Society | Iowa Academy of Sciences
Iowa Association of American Physics Teachers

Invited Conference Presentations and Colloquia:

1. "Photoemission Studies of the Charge Density Wave Phase Transition of $TiSe_2$" Synchrotron Radiation Center User Meeting, Stoughton, WI, October 2001
2. "Surface Charge Density Wave in Sn/Ge(111)" Brookhaven Laboratory Physics Department Seminar, Upton, NY, January 2002
3. "Low temperature properties of Sr_2RuO_4 by angle-resolved photoemission spectroscopy" Brookhaven Laboratory Physics Department Seminar, Upton, NY, April 2003
4. "Electron-hole coupling and the charge density wave transition in $TiSe_2$" American Physical Society March Meeting, Montreal, Canada, March 2004
5. "The Role of Dimensionality in Unconventional Superconductors" SUNY NY Physics Department Colloquium, New York, NY, December 2004
6. "The Role of Dimensionality in Unconventional Superconductors" Tulane University Physics Department Seminar, New Orleans, LA, February 2005
7. "The Role of Dimensionality in Unconventional Superconductors" UNI Physics Department Colloquium, Cedar Falls, IA, February 2005
8. "Why Physics is More Fun in Two Dimensions" UNI Physics Department Colloquium, Cedar Falls, IA, September 2005
9. "Metals in Flatland" UNI Physics Department Colloquium, Cedar Falls, IA, September 2006
10. "Applications in Scanning Probe Microscopy" UNI Physics Department Colloquium, Cedar Falls, IA, September 2007
11. "Future of Alternative Energy at UNI," UNI Physics Department Banquet, Cedar Falls, IA, April 2008
12. "Where Nanoscience Meets Alternative Energy," Physics Update Conference, Cedar Falls, IA, April 2008
13. "Solid State Nano-Manufacturing" UNI Physics Department Colloquium, Cedar Falls, IA, September 2008
14. "Intercalated Dichalcogenides: A Case Study in Two Dimensional Disorder and Doping" Mankato State University Physics Department Colloquium, Mankato, Mn, April 2009
15. "Intercalated Dichalcogenides: A Case Study in Two Dimensional Disorder and Doping", Physics Department Colloquium, University of Missouri-Columbia, Columbia, MS, May 2009
16. "Intercalation: How to Spice Up a Two Dimensional Sandwich", UNI Physics Department Colloquium, Cedar Falls, IA, September 2009
17. "High Density Hydrogen Storage: Needs, Methods, and Applications" Joint Chemical and Electrical Engineering Colloquium, University of Iowa, Iowa City, Iowa, September 2009
18. "Nano-structured Dichalcogenides: Mistakes at the Molecular Level," UNI Physics Department Colloquium, Cedar Falls, IA, September 2010
19. "Creation of Optically Active Nanostructures on Layered Materials," Missouri University Research Reactor Colloquium, Columbia, MO, April, 2014
20. "Atomic Scale Control of Metal Films," Electrical Engineering Dept. Colloquium, Texas Tech University, Lubbock, TX, November 2019
21. "Influence of Dimensional Confinement at the Metal-Layered Crystal Interface," DOE ECMP Meeting, Washington DC, September 2019
22. "Atomic Scale Control of Metal Films," UNI Physics Department Colloquium, Cedar Falls, IA, January 2020
23. "Atomically Flat Gold Films," UNI Research Foundation, Cedar Falls, IA, October 2020
24. "Electronic Growth of Metals on 2D Semiconductors," DOE ECMP Meeting, Virtual, September 2021
25. "Advanced Nanocellulose Materials," Iowa NSF EPSCoR Phase I planning grant, Virtual, January 2022

26. "Advances in 2D Condensed Matter Physics," DOE BES, Germantown, MD, February 2022

Books and Book Chapters:

Kidd, T. E., "Dopant Driven Electron Beam Holography." In *Scanning Electron Microscopy*, Kazmiruk, V., Ed. Intech: Rijeka, 2012; pp 1-16.

Patents

1. Preliminary filing, "THIN METAL FILMS HAVING AN ULTRA-FLAT SURFACE AND METHODS OF PREPARING THE SAME," Tim Kidd & Andrew Stollenwerk, Filed September 15, 2020. Application Published March 24, 2022. https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2022060840&_cid=P21-L6SBB9-56695-1

Refereed Publications :

1. T. E. Kidd, P. Kruckenberg, C. Gorgen, PV Lukashev, AJ Stollenwerk, "Criteria for electronic growth of Au on layered semiconductors." Journal of Applied Physics, 132 245301 (2022)
2. TE Kidd, PM Shand, AJ Stollenwerk, C Gorgen, Y Moua, L Stuelke, PV Lukashev, "Large-field Magnetoresistance of nanometer scale nickel films grown on molybdenum disulfide," AIP Advances **12** 035233 (2022)
3. TE Kidd, PV Lukashev, L Stuelke, C Gorgen, S Roberts, G Gu, AJ Stollenwerk, "Diffusion energy barrier of Au on Bi2Se3: theory and experiment, Physica Scripta **96** 125708 (2021)
4. AJ Stollenwerk, L Stuelke, L Margaryan, TE Kidd, PV Lukashev, "First principles study of nearly strain-free Ni/WSe2 and Ni/MoS2 interfaces," Journal of Physics: Condensed Matter **33** 425001 (2021)
5. TE Kidd, J Weber, E O'Leary, AJ Stollenwerk, "Preparation of ultrathin gold films with subatomic surface roughness," Langmuir **37**, 9472-9477 (2021)
6. T. E. Kidd, S. Skylar, S. Roberts, R. Carlile, P. V. Lukashev, A. J. Stollenwerk, "Electronic Growth of Pd(111) nanostructures on MoS2," J. App Phys, **129**, 174303 (2021)
7. J. Tibbs, SM Ali Tabei, T. E. Kidd, J. P. Peters, "Effects of Intercalating Molecules on the Polymer Properties of DNA," J. Phys. Chem. B, **124**, 8572, (2020)
8. T. E. Kidd, E. O'Leary, A. Anderson, S. Scott, A.J. Stollenwerk, "Self-assembled Ag(111) nanostructures induced by Fermi surface nesting," *Phys. Rev. B*, **100**, 235447 (2019)
9. T. E. Kidd, J. Weber, R. Holzapfel, K. Doore, and A. J. Stollenwerk, "Three-dimensional quantum size effects on the growth of Au islands on MoS2." *Appl. Phys. Lett.* **113**, 191603 (2018)
10. Derek Bradley, Eric Clausen, Paul M. Shand, Matthew Fleming, Timothy E. Kidd, "Development of Ultralight Nanocellulose Magnets Using Ultrasonic Agitation." *Journal of Vacuum Science and Technology B*, **36**, 061801 (2018)
11. Andrew J Stollenwerk, Eric Clausen, Matthew Cook, Keith Doore, Ryan Holzapfel, Jacob Weber, Rui He, Timothy E Kidd, "Room Temperature Formation of Carbon Onions via Ultrasonic Agitation of MoS2 in Isopropanol" *Journal of Nanoscience and Nanotechnology* **18**, 3171-3175 (2018)
12. RS Revuru, JZ Zhang, NR Posinasetti, T Kidd, "Optimization of titanium alloys turning operation in varied cutting fluid conditions with multiple machining performance characteristics" *The International Journal of Advanced Manufacturing Technology* **95**, 1451-1463 (2018)
13. J.J. Deisz and T. E. Kidd, "Weak-coupling analysis of quasiparticle excitations in Sr2RuO4 along the Γ−M cut" *Physical Review B* **95**, 045122 (2017)
14. K. Doore, M. Cook, E. Clausen, P.V. Lukashev, T. E. Kidd, A. J. Stollenwerk, "Electronic structure of multi-walled carbon fullerenes" *Journal of Physics: Condensed Matter* **29**, 075302 (2016)
15. M. W. Roth, B. Wandling, T. E. Kidd, P.M. Shand, A. Stollenwerk, "Simulated structural and magnetic behavior of Mn–Ti intercalated dichalcogenide crystals" *Journal of Physics: Condensed Matter* **28**, 184001 (2016)

16. R. He, F. Carta, M. Ashan, K. Bader, E. Maldonado, C. Delaney, T. Kidd, B. Beck, C. Reilly, I. Kymissis, A. Pinczuk, M. Roth, "Formation and interaction of self-assembled pentacene structures on monolayer graphene" *Science Letters Journal* **4**, 199 (2015)
17. C. H. Lui, Zhipeng Ye, Chao Ji, Kuan-Chang Chiu, Cheng-Tse Chou, Trond I. Andersen, Casie Means-Shively, Heidi Anderson, Jenn-Ming Wu, Tim Kidd, Yi-Hsien Lee, and Rui He "Observation of interlayer phonon modes in van der Waals heterostructures" *Physical Review B* **91**, 165403 (2015)
18. AJ Stollenwerk, N Hurley, B Beck, K Spurgeon, TE Kidd, G Gu "Manipulation of subsurface carbon nanoparticles in Bi 2 Sr 2 CaCu 2 O 8+ δ using a scanning tunneling microscope" *Physical Review B* **91** (12), 125425 (2015)
19. PM Shand, C Cooling, C Mellinger, JJ Danker, TE Kidd, KR Boyle, LH Strauss "Magnetic states in nanostructured manganese-intercalated TaS_2" Journal of Magnetism and Magnetic Materials (2015)
20. Timothy E Kidd, Aron O'shea, Ben Beck, Rui He, Conor Delaney, Paul Shand, Laura Strauss, Andrew Stollenwerk, Noah Hurley, Kyle Spurgeon, Genda Gu "Universal method for creating optically active nanostructures on layered materials" *Langmuir* **30** (20), 5939 (2014)
21. R He, S. Suchantakul, Z Ye, T. E. Kidd, "Laser induced oxidation and optical properties of stoiciometric and non-stoichiometric Bi2Te3 nanoplates" *Nano Research* 1-9 (2014)
22. Aaron O'Shea, Jeff Wallace, Matt Hummel, Laura H. Strauss, and Timothy E. Kidd, "Enhanced detection of nanostructures by scanning electron microscopy using insulating materials" *Micron* **52–53** (0), 57 (2013).
23. Cheehuei Lee, Rui He, Zhenhua Wang, Richard LJ Qiu, Ajay Kumar, Conor Delaney, Ben Beck, Tim Kidd, Clifton Chancey, and R Sankaran, "Metal-Insulator Transition in Variably Doped (Bi1-xSbx) 2Se3 Nanosheets" *Nanoscale* (2013).
24. B. E. Friend, E. Wolter, T. E. Kidd, and A. J. Stollenwerk, "Ballistic electron transport properties across the manganese/silicon interface" *Applied Physics Letters* **102** (9), 091605 (2013)
25. He Rui, Wang Zhenhua, L. J. Qiu Richard, Delaney Conor, Beck Ben, T. E. Kidd, C. C. Chancey, and P. A. Gao Xuan, "Observation of infrared-active modes in Raman scattering from topological insulator nanoplates" *Nanotechnology* **23**, 455703 (2012).
26. T. E. Kidd, A. O'Shea, Z. Griffith, S. Leslie, P. M. Shand, K. R. Boyle, L. H. Strauss, "Synthesis of magnetic 1D dichalcogenide nanostructures," *Journal of Nanoparticle Research* **14**, 903 (2012)
27. Shand, P. M., Meyer, A. L., Streicher, M.; Wilson, A.; Rash, T., Roth, M. W., Kidd, T. E., Strauss, L. H., "Coulomb-driven cluster-glass behavior in Mn-intercalated $Ti_{1+y}S_2$." *Physical Review B* **85**, 144432 (2012)
28. Yang, H. B., J. D. Rameau, Z. H. Pan, G. D. Gu, P. D. Johnson, H. Claus, D. G. Hinks and T. E. Kidd. "Reconstructed Fermi Surface of Underdoped $Bi_2Sr_2CaCu_2O_{8+\delta}$ Cuprate Superconductors." *Physical Review Letters* **107,** 047003 (2011)
29. J. J. Deisz and T. E. Kidd, "Spin-orbit induced mixed-parity pairing in Sr2RuO4: a quantum many-body Calculation" *Physical Review Letters* **107**, 277003 (2011)
30. Stollenwerk, A. J., O'Shea, A., Wolter, E., Roth, M. W., Strauss, L. H., Kidd, T. E., "Emergence of Long Range One-Dimensional Nanostructures in a Disordered Two-Dimensional System: Mn-Doped $Ti_{1+\delta}S_2$". *The Journal of Physical Chemistry C* **116**, 764-769 (2011)
31. T. E. Kidd, A. O'Shea, K. Boyle, J. Wallace, L.-H. Strauss. "Synthesis of Freestanding HfO2 Nanostructures" *Nanoscale Research Letters* **6**, 294 (2011)
32. J. D. Rameau, J. Smedley, E. M. Muller, T. E. Kidd, and P. D. Johnson. "Properties of Hydrogen Terminated Diamond as a Photocathode," *Physical Review Letters*) **106**, 137602 (2011)
33. T. E. Kidd, D. Klein, T. A. Rash, and L. H. Strauss. "Dopant Based Electron Beam Lithography in Cu_xTiSe_2" *Applied Surface Science* **257**, 3812 (2010)
34. P. M. Shand, T. Rash, M. Streicher, T. E. Kidd, L. H. Strauss. "Coercivity and exchange bias in $Mn_{0.25}TiS_2$" *Physical Review B* **82**, 214413 (2010)
35. T. E. Kidd, B. I. Gamb, P. I. Skirtachenko, et al. "Dopant Enhanced Etching of $TiSe_2$ by Scanning Tunneling Microscopy" *Langmuir* **26**, 10980 (2010)
36. T. E. Kidd, S. Davis, D. Klein, et al. "Formation of nanoscale clusters during the initial stages of CaF_2 growth on miscut Si(111)" *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films* **28**, 1245 (2010)
37. H.-J. Noh1, H. Koh, S.-J. Oh, J.-H. Park, H.-D. Kim, J. D. Rameau, T. Valla, T. E. Kidd, P. D. Johnson, Y. Hu and Q. Li. "Spin-orbit interaction effect in the electronic structure of Bi2Te3 observed by angle-resolved photoemission spectroscopy," Europhysics Letters **81** 57006 (2008)

38. T. E. Kidd, T. Valla, P. D. Johnson, K. W. Kim, G. D. Gu, C. C. Homes. "Doping of a one-dimensional Mott insulator: Photoemission and Optical Studies of Sr2CuO3+δ" Physical review B, **77**, 054503 (2008)
39. T. Valla, T. E. Kidd, W.-G. Yin,1 G. D. Gu, P. D. Johnson, Z.-H. Pan, and A.V. Fedorov "High-Energy Kink Observed in the Electron Dispersion of High-Temperature Cuprate Superconductors,", Physical Review Letters, **98**, 167003 (2007)
40. T. Valla, T.E. Kidd, J.D. Rameau, H.-J. Noh, G.D. Gu, et al. "Fine details of the nodal electronic excitations in Bi2Sr2CaCu2O{8+ delta}" Physical Review B, **73**, 184518 (2006)
41. T. E. Kidd, T. Valla, A. V. Fedorov and P. D. Johnson. "Orbital Dependence of the Fermi Liquid State in Sr2RuO4" Physical Review Letters, **94**, 107003 (2005)
42. S.-C. Wang, H.-B. Yang, A. K. P. Sekharan, H. Ding, J. R. Engelbrecht, X. Dai, Z. Wang, A. Kaminski, T. Valla, T. Kidd, A. V. Fedorov, and P. D. Johnson . "Quasipartical Line Shape of Sr2RuO4 and its relation to anisotropic transport" Physical Review Letters, **92**, 137002 (2004)
43. C. S. Snow, J. F. Karpus, S. L. Cooper, T. E. Kidd, T.-C. Chiang. "Quantum Melting of the Charge Density Wave Transition in $TiSe_2$" Physical Review Letters, **91** (2003) pp. 136402
44. T.-C. Chiang, M. Y. Chou, T. Kidd, T. Miller. "Fermi surfaces and energy gaps in Sn/Ge(111)" Journal of Physics: Condensed Matter. **14** (2002) R1-R20
45. T. E. Kidd, T. Miller, M. Y. Chou, T.-C. Chiang. "Electron-Hole Coupling and the Charge Density Wave Transition in $TiSe_2$" Physical Review Letters, **88** (2002) pp. 226402:1-4
46. T. E. Kidd, T. Miller, M. Y. Chou, T.-C. Chiang. "Sn/Ge(111) surface charge-density-wave phase transition" Physical Review Letters, **85** (2000) pp. 3684-7
47. T. E. Kidd, T. Miller, T.-C. Chiang. "Core level analysis of the surface charge density wave transition in Sn/Ge(111)" Physical Review Letters,.**83** (1999) pp. 2789-92
48. T. Kidd, R. D. Aburano, H. Hong, T. Gog, T.-C. Chiang. "Structural determination of the C_{60}/Ge(111) interface via X-ray diffraction" Surface Science, **397**, no.1-3 (1998) pp.185-90.
49. A. Nazeri, M. Kahn, T. Kidd. "Strontium-barium-titanate thin films by sol-gel processing" Journal of Materials Science Letters, **14**, no.15 (1995) pp.1085-8.
50. A. Nazeri. "Crystallization of sol-gel deposited potassium-tantalate-niobate thin films on platinum" Applied Physics Letters, **65**, no.3 (1994) pp.295-7.

Student Research Awards / Invited/ External Presentations (University of Northern Iowa)

1. Nate Becker (Spring, 2008): Presented at APS March Meeting
2. Dustin Klein (Spring, 2008): Presented at APS March Meeting
3. Shanon Davis (Spring, 2009), CUR: Posters on the Hill: Selected to present her research findings to congress in Washington DC. Only one hundred undergraduates were selected from the entire nation.
4. Shanon Davis (Spring, 2009): Research at the Capitol: Selected to present her research to Iowa state legislators in Des Moines, IA
5. Kayla Boyle (Spring 2010): Research at the Capitol: Research at the Capitol: Selected to present her research to Iowa state legislators in Des Moine, IA
6. Jeff Wallace (Spring 2010): Best Physics Department Research Presentation Award
7. Aaron O'Shea (Spring 2011): Research at the Capitol: Research at the Capitol: Selected to present her research to Iowa state legislators in Des Moine, IA
8. Aaron O'Shea (Spring, 2011), CUR: Posters on the Hill: Selected to present his research findings to congress in Washington DC. Only 74 undergraduates were selected from the entire nation.
9. Aaron O'Shea (Spring 2011): Best Physics Department Research Presentation Award
10. Erik Wolter (Spring 2011): Iowa Section of the American Association of Physics Teachers
11. Aaron O'Shea (Spring 2011): Iowa Section of the American Association of Physics Teachers
12. Erik Wolter (Spring, 2012): Research at the Capitol: Selected to present her research to Iowa state legislators in Des Moine, IA
13. Erik Wolter (Spring 2012): Best Physics Department Research Presentation Award
14. Erik Wolter (Spring 2012): Awarded full-paid trip to present research at NCUR conference.
15. Ben Beck (Spring 2013): Awarded full-paid trip to present research at NCUR conference.
16. Ben Beck (Spring, 2013): Research at the Capitol: Selected to present her research to Iowa state legislators in Des Moine, IA
17. Derek Bradley (Spring 2015): Awarded full-paid trip to present research at NCUR conference.

18. Derek Bradley (Spring, 2015): Research at the Capitol: Selected to present her research to Iowa state legislators in Des Moines, IA
19. Derek Bradley (Spring 2016): Awarded full-paid trip to present research at NCUR conference.
20. Derek Bradley (Spring, 2016): Research at the Capitol: Selected to present her research to Iowa state legislators in Des Moines, IA
21. Derek Bradley (Spring, 2016): CUR: Posters on the Hill: Selected to present his research findings to congress in Washington DC. Less than 100 scholars were selected throughout the U.S.
22. Byron Fritch (Spring, 2016): Presented at APS March Meeting
23. Byron Fritch (Fall, 2016): Presented at Quadriennial SPS Conference
24. Byron Fritch (Spring, 2017): Awarded full-paid trip to present research at NCUR conference
25. Byron Fritch (Spring, 2017): Research at the Capitol: Selected to present her research to Iowa state legislators in Des Moines, IA
26. Taylor Harris (Fall, 2019): Presented at SPS Physcon
27. Joseph Tibbs (Spring, 2020): Presented at Biophysical Society Meeting
28. Taylor Harris (Spring, 2020): Invited to present at Iowa Research at the Capitol (Cancelled for Covid-19)
29. Jeff Carlson (Fall, 2022): Presented at SPS Physcon, DC
30. Jacob Scheel (Fall, 2022): Presented at SPS Physcon, DC
31. Ashley Harrington (Spring, 2023): Presented at CUWiP, Iowa City
32. Jacob Scheel (Spring, 2023): Presented at CUWiP, Iowa City
33. Jeff Carlson (Spring 2023): Presented at APS March Meeting, Las Vegas
34. Madelyn Johnson (Spring 2023): Presented at APS March Meeting, Las Vegas

Student Research Assistants:

[+] Co-author on accepted or published manuscript

* Supervised/supervising undergraduate thesis work or master's degree final project

$ Student awarded university level research grant

Undergraduate (52)

1. [$]Jon Lamb, 5/06-5/07, "Development of Nanoscience Laboratory"
2. [$]Jennifer Sales 1/07-5/07, "Development of Optics Experiments for a General Audience"
3. [$]Marjorie Thomas 1/07-5/07, "Development of Optics Experiments for a General Audience"
4. [+,$]Brett Gamb 5/07-12/07, "STM Tunneling Studies of $TiSe_2$"
5. [+]Polina Skirtachenko 5/07-8/07, "Molecular Etching of $TiSe_2$ using STM"
6. [$]Chris Massina 5/07-8/07, "Abnormally High Mobility of Gold Atoms on $TiSe_2$"
7. [+,$]Dustin Klein, 7/07-5/09, "Synthesis of Quantum Dots by Molecular Beam Epitaxy"
8. [$]Brice Jensen 10/07-1/09, "Investigations of Nanoscale Protective Coatings for Stainless Steel"
9. [+,$]Tyler Rash 9/07-1/09, "Development of Synthesis Methods for Transition Metal Dichalcogenides"
10. [+,$]Shanon Davis 3/07-05/09, "Design of Electrical Testing Stage for a Scanning Electron Microscope"
11. [+]Viktoria Skirtachenko 5/08-8/08, "Atomic Force Microscopy of Quantum Dot Solar Cells"
12. [+]Valeria Stifeeva 5/08-8/08, "Atomic Force Microscopy of Au Nanoparticles on Stainless Steel"
13. [$]Chris Waalck 1/09-5/09, "Rotary Engine Propelled by Pressure"
14. [$,+]Jeff Wallace 5/09-05/11, "Optical and Electron Microscopy of Layered Materials"
15. [$]Jason Dove 5/09 – 12/09, "Auger Spectroscoy and LEED studies of Nanostructured Materials"
16. Sofia Markova 5/09-8/09, "Magnetic Interactions in Mn Doped TiS2"
17. [$]Laura Hattaway 07/09-5/12, "Shielding for MBE Sources"
18. [+,*,$]Erik Wolter 01/09-05/12, "MBE High Vacuum Chamber Design"
19. [$,+]Aaron O'Shea 01/10-05/12, "SEM Investigations into Dichalcogenides"
20. Jeordan Piper 09/10-5-11, "AFM Etching of Dichalcogenide Surfaces"
21. Hannah Wilson 08/10-12/10, "SEM Investigations into the Clustering of Nanoscale Thick Gold Films"
22. [$,+]Kayla Boyle 05/10-05/11, "Synthesis of Dichalcogenide Nanostructures"
23. Brad Noethe 05/11 – 12/11. "Electronic Structure of Cuprates"
24. [$],Keaton Carter 08/11-05/12,"Labview Control Systems"
25. [$,+], Ben Beck 08/11-05/14,"Topological Crystals"
26. [$], Laura Cross 08/11 –05/12, "Preparation of Single Layer Dichalcogenides"
27. Kyle Jaschen 09/11-05/12, "Optical Studies of Finite Layer Dichalcogenides"
28. [+,$],Eric Clausen 07/12-05/15, "Synthesis of MoS_2 Nanoparticles"

29. $,Derek Bradley 01/13 – 05/16, “Synthesis of Nanocellulose Thin Films and Sheets”
30. Bob Speilbauer 01/13 – 12/13, “Synthesis of ultra-low density Nanocellulose”
31. Bart Clubine 01/13-5/13, “Implementation of I-V Test station for Photovoltaics”
32. $,Shawn Poellet 06/13-09/13, “Incorporation of Carbon Nanotubes into Nanoccellulose”
33. Madelaine Ball 06/13-07/13, “Antibacterial Properties of Nanocellulose embedded with Ag Nanoparticles”
34. Sierra Butcher 08/13-07/13, “Incorporation of Magnetic Powders into Nanocellulose Aerogels”
35. [+,$]Kyle Spurgeon 06/13-5/16, “Synthesis and Maniupulation of 3D nanostructures on Layered Materials”
36. [$]Andrew Folken 06/13-5/15, “Synthesis of Nanocellulose Solids and Aerogels”
37. Alex Corker 06/13-08/13, “Development of Wiimote Controlled Go-Karts for NSF EPSCoR Camp”
38. Courtney Keiser 10/14-5/15, “Development of Plasma Speaker for Outreach”
39. [$],*Byron Fritch, 5/15-5/17, “Development of Ultra-Low Density Nanocellulose Aerogels”
40. [$]Christine Nielson, 5/15-08/17, “Wii Controlled Go-Kart Upgrade”
41. Amber Hartness, 5/15-5/20, “AFM Studies of Time Evolution of Electron Beam Induced Nanostructures”
42. [$]Payton Burkness, 5/15-8/16, “Optimization of Electron Beam Induced Nanostructures for Devices”
43. [$]Jessica Thatcher, 5/15-12/15, “Autonomous Robot for Demonstration and Outreach”
44. John Danker, 5/15-8/15, “Labview Based Robot for Demonstration and Outreach”
45. [$]Ryan Holzpfafel, 5/15-16, “Localized Heating for Low Power Water Sterilization”
46. Keegan Morrisey, 4/17-8/17, “Nanocellulose Aerogel Catalysts”
47. Brent Anderson, 05/18-8/18, “Formation of Finite Layer MoS2 by Au induced Cleavage”
48. [$]Dexter Cox, 05/18-1/20, “Optimization of Low Density Nanocellulose Aerogels”
49. [$]Taylor Harris, 10/18-Present, “Atomic Force Microscopy of Layered Materials”
50. [+]Joseph Tibbs, 8/19-3/20, “AFM Studies on DNA molecules”
51. Hamad Ullah 1/19-5/19, “Upgrading pattern for printing 3D chocolate”
52. [$]Tyler Brown 1/18-8/20, “Learning with Robotics for Upward Bound Students”
53. [$]Nathan Schmidt 7/19-Present, “Developing 3D printer for Nanocellulose”
54. [$]Jacob Scheel, 6/21-9/21, “Efficient Nanocellulose Processing”
55. [$]Erica Oler, 8/21-1/22, “Frictionless Motion Demonstrations: Hovercraft Big and Small”
56. [$]Lydia Butters, 10/21-5/22, “Color Theory: Physics Roadshow”
57. Branson Schmidt, 10/21 – 5/22, “AFM investifations of Dichalcogenides”
58. [$]Jeff Carlson, 10/21-Present, “Nanocellulose Fabrication”
59. [$]Ashley Harrington, 1/22-Present, “Nanocellulose Casting”
60. Owen Lerg, 8/1/22 – Present, “Optical Illusions: Physics Roadshow”
61. Blake Lively, 8/1/22 – Present, “Interactive optics for K-6 outreach.”
62. Madelyn Johnson, 1/10/23 – Present, “Diffusion of Organic Intercalants in Layered Materials”
63. [$]Logan Ingraham, 1/10/23 – Present, “Microprocessor controlled thermal shielding measurement”

Graduate: (10)

William Griffin 1/07 – 5/07, “Integration of Heating System for UHV”
Charles Peltin 1/07 – 5/07, “Construction of PID Control for MBE”
[+,*,$]Nate Becker 7/07-5/08. “AFM Characterization of Quantum Dots”
[$]Nathan Beougher 8/07-5/08, “Integration of E-Beam Lithography into SEM”
*,[$]Phillip Adilique 8/08-12/09, “Atomic Force Microscopy of Layered Dichalcogenides”
*Ziyaun Li 9/08-05/10, “Computer Interface Control of Molecular Beam Epitaxy”
[$]Amanda Foley 1/09-12/09, “SEM Studies of Diffusion on the Surface of Dichalcogenides”
Molly Small 09/08-05/09, “Implementation of Nanoscience Equipment for Research and Education”
Meghan Reynolds 01/01/12-05/01/12, “SEM Investigations of Microscale Transition Metal Dichalcogenides”
[$,*] Jeff Wallace 0/1/13-08/13, “Development of Iowa Rover Robot”

High School Students (2)

Erik Cheng 06/13-08/13, “EDX studies of nanoparticles”
Joshua Wolf, 06/01/22 – 08/20/22, “AFM studies of gold nanoparticles on MoS2”

In-Service High School/Junior High Teachers: (5)

Lisa Bushnell 5/06-8/06, “Development of Sputtering System for Ultra-High Vacuum”
5/07-8/07, “Nanoscale Protective Coatings for Stainless Steel”
Derek Wibe 5/07-8/07, “Nanoscale Gold Coatings to Inhibit Oxidation of Stainless Steel”

Erica Larson 7/08-8/08, "Magnetic Properties of Mn-Doped TiS_2"
Melinda Hamman 07/09-08/09, "Simulated Diffraction Patterns of Layered Dichalcogenides"
Jason Drucker 07/09-08/09, "SEM and EDX studies of Layered Dichalcogenides"

Supervised 4 Master's level final projects and 2 Undergraduate Honor's Thesis

Contributed Talks (Presenter)

1. 1999 APS March Meeting – "Charge-Density-Wave transition of Sn/Ge(111) verified with core-level photoemission"
2. 2000 APS March Meeting – "ARPES investigation into the nature of the Surface Charge Density Wave formation of Sn/Ge(111)"
3. 2001 APS March Meeting – "ARPES investigation of the electronic structure of Titanium Diselenide"
4. SRC User Meeting (Poster) – "Electron-hole coupling and the charge density wave transition in $TiSe_2$"
5. 2001 PEC Conference – "ARPES investigation of a Charge Density Wave at the Sn/Ge(111) surface"
6. APS March Meeting – "Photoemission studies of the CDW phase transition in TiSe2"
7. APS March Meeting – "Fermi liquid properties of Sr_2RuO_4 by angle-resolved photoemission"
8. APS March Meeting –"Symmetry dependent excitations in pure and titanium doped Sr_2RuO_4"
9. APS March Meeting –"Photoemission Study of Doping in the Strontium Ruthenate Family"
10. CSUI Conference – "Unconventional Charge Density Wave Formation in $TiSe_2$"
11. APS March Meeting – "Molecular Etching of Pure and Mn Intercalated $TiSe_2$ using an STM"
12. APS March Meeting – "Intercalant Based E-Beam Lithography on a Layered Dichalcogenide Surface"
13. APS Prairie Section Meeting (Poster) – "Manipulation of Dopants in a Two Dimensional Matrix"
14. APS March Meeting – "Tuning Magnetic Interactions in a Two Dimensional Matrix"
15. APS March Meeting- "Band Renormalization in Mn Doped TiS_2"
16. 2011 IAS Spring Meeting: "Nanostructured Materials: The World's Smallest Mistakes"
17. 2011 APS Prairie Section Meeting. "One Dimensional Magnetic Dichalcogenide Nanostructures"
18. IAS Spring Meeting. "Electron Beam induced Nanostructures in Layered Materials."
19. 2012 APS Dept. Workshop "One Physics Department's Response to Elimination"
20. NASA EPSCoR Workshop "Manipulation of Dopants in a 2D Matrix"
21. 2013 APS March Meeting "Universal method for creating 3D nanostructures in layered materials"
22. APS March Meeting "Nanocellulose Composite Materials Synthesized with Ultrasonic Agitation"
23. Iowa Academy of Sciences "Nanocellulose Aerogel Composites for use as Catalyists"
24. APS March Meeting "Magic Size Effects in the Au/MoS_2 System"
25. 2020 APS March Meeting, "Electronic Growth Modes in Metal Dichalcogenide Interfaces"
26. 2021 IAAPT Meting, "UNI Physics Roadshow: Planning Stages"
27. 2022 MMM/IEEE Magnetism Conference, "Electronic, magnetic, and structural properties of Ni/MoS_2 and Ni/WSe_2 interfaces"
28. 2022 APS March Meeting, "Subatomic surface roughness in nanometer scale Au/MoS2 films"
29. 2023 APS March Meeting, "Criteria for electronic growth in layered materials"