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### EDUCATION:

Ph.D. in Physics, University of Illinois at Urbana-Champaign, 1988.

B.A. in Mathematics and Physics with Highest Distinction,  
University of Virginia, Charlottesville, VA, 1982.

### HONORS, AWARDS AND FELLOWSHIPS:

Edith C. Alexander Award for Teaching Excellence, College of Arts and Sciences,  
University of Cincinnati, 1998.

Nominated for the Dolly Cohen Award for Teaching Excellence, University of  
Cincinnati, 1996, 1997, and 1998.

Allan Berman Research Publication Award, Naval Research Laboratory, 11/96.

University of Cincinnati Faculty Achievement Award, 11/96

IBM Pre-Doctoral Fellowship, 9/87-5/88.

Shell Foundation Pre-Doctoral Fellowship, 9/86-9/87.

National Science Foundation Pre-Doctoral Fellowship, 5/83-5/86.

J. W. Elkins Award in Physics, University of Virginia, 5/82.

Echols Scholar, University of Virginia, 9/78-5/82.

National Merit Scholar, 1978.

### HONOR SOCIETIES AND PROFESSIONAL ORGANIZATIONS:

Sigma Xi, 4/89.

American Physical Society, 9/83.

Phi Beta Kappa, University of Virginia, 4/81.

Raven Society, University of Virginia, 4/81.

### PROFESSIONAL EXPERIENCE:

9/01 - University of Cincinnati, Full Professor

9/96 - 9/01 University of Cincinnati, Associate Professor

9/99 - 9/00 Technical University of Denmark, Visiting Professor

9/90 - 9/96 University of Cincinnati, Assistant Professor

5/88 - 9/90 IBM Thomas J. Watson Research Center, Visiting Scientist

5/83 - 5/88 University of Illinois at Urbana-Champaign, Graduate Assistant

9/82 - 5/83 Princeton University, Graduate Assistant

## RESEARCH INTERESTS:

My main areas of interest lie in the physics of electronic states in semiconductor nanostructures: confinement potentials, wavefunctions, many body effects, and interactions with phonons, photons, or impurities. A general theme of my research is to combine:

- (a) ultrahigh **spectral resolution**: to determine the energetics of these states with micro-eV precision.
- (b) sub-micron **spatial resolution**: to isolate single quantum confined states, or measure the transport properties of neutral particles.
- (c) picosecond **temporal resolution**: to measure the *dynamical* interactions between these various states.

to achieve a more complete picture of these electronic states and their interactions. In particular, my research publications can be divided into several areas: (1) semiconductor nanowire heterostructures, (2) quantum dots and their excitons, (3) exciton spins and magnetic impurities, (4) exciton transport and interactions with spins or phonons, (5) many-body effects in semiconductors.

## TEACHING INTERESTS:

Most recently (2007-2009), I have been involved in development of three online courses "How Things Work" using the book by Louis Bloomfield of the University of Virginia. This course now enrolls 200 students each quarter (130 in-class and 70 online) which cover Physics Concepts in Mechanics, Fluids and Aerodynamics (Fall), Gravity, Orbital Mechanics, Thermodynamics and Global Warming (Winter), and Mechanical Waves, Optics, Quantum Mechanics, and Nuclear Power (Spring). This course is designed as a survey course for non-technical students. All of the assignments and tests are taken online by both sections, and there is significant activity (>1500 posts/quarter) in various discussion boards which discuss these topics. The in-class sections also utilize the Personal Response System (clickers) where students are actively involved in responding to rhetorical questions within the class. The guiding premise in this class is to use deconstruction of everyday objects and situations in order to teach physics concepts with essentially no mathematics.

During (2005-2009) I have participated in an NSF Supported (\$175,000) Curriculum development project on Nanoscale Science and Technology. Two courses were developed: PHYS 278/CHEM 278/ENFD 278 which is a lecture course involving participants in Physics, Chemistry, Electrical, Mechanical, and Chemical Engineering, Materials Science and Philosophy, and which covers the major scientific challenges in current nanoscience as well as societal implications. PHYS 279/CHEM 279/ENFD 279 is an intensive Laboratory Course which involves synthesis and characterization techniques for Nanoscale Materials such as carbon nanotubes, gold plasmonic nanoparticles, and quantum dots.

Previously (2001-2003) I was involved in the development of the new course Intermediate Physics (PHYS 351, PHYS 352 and PHYS 353) which introduces 2nd year physics majors to concepts of waves through classical mechanics to quantum mechanics, also including diversions into Vector Calculus and Fourier Series and Transforms, as well as Special Relativity. This course involved 4 lectures/recitations and a 3 hour laboratory each week. The laboratories

involved novel experiments in waves and oscillators, and quantum mechanics, with modelling, analysis, and lab reports made using *Mathematica*.

During (1995-1999) I developed a series of novel laboratories in collaboration with Richard Gass for the Honors General Physics taken by honors students and physics majors. The laboratories were designed to teach students experimental techniques and analysis using *Mathematica* and are still in active use today.

## **PUBLICATIONS:**

1. "Room Temperature Photocurrent Spectroscopy of Single Zincblende and Wurtzite InP Nanowires," A. Maharjan, K. Pemasiri, A. Wade, L.M. Smith, H.E. Jackson, J.M. Yarrison-Rice, A. Kogan, S. Paiman, Q. Cao, H.H. Tan, and C. Jagadish, submitted to *Applied Physics Letters*, April 2009.
2. "Effect V/III ratio and catalyst particle size on the crystal structure and optical properties of InP nanowires," S Paiman, Q Gao, H H Tan, C Jagadish, K Pemasiri, M Montazeri, H E Jackson, L M Smith, J M Yarrison-Rice, X Zhang and J Zou, *Submitted to Nanotechnology*, Feb. 2009.
3. "Carrier dynamics and quantum confinement in Type-II ZB-WZ InP nanowire homostructures," Kuranananda Pemasiri, Mohammad Montazeri, Richard Gass, Leigh M. Smith, Howard E. Jackson, Jan Yarrison-Rice, Suriati Paiman, Qiang Gao, H. Hoe Tan, Chennupati Jagadish, Xin Zhang, and Jin Zou, *Nano Letters* **9**, 648-654 (2009).
4. "Unexpected Benefits of Rapid Growth Rate for III-V Nanowires," Hannah J. Joyce, Qiang Gao, H. Hoe Tan, Chennupati Jagadish, Yong Kim, Melodie A. Fickenscher, Saranga Perera, Thang Ba Hoang, **Leigh M. Smith**, Howard E. Jackson, Jan M. Yarrison-Rice, Xin Zhang, and Jin Zou, *Nano Letters* **9**, 695-701 (2009).
5. "Optical Properties of Single CdS Nanosheets," H. Rho, K.Y. Lee, T.B. Hoang, T.V. Titova, A. Mishra, L.M. Smith, H.E. Jackson, J.M. Yarrison-Rice, Y.J. Choi, K.J. Choi, and J.G. Park, *Journal of the Korean Physical Society*, **53**, 3073-3076 (2008).
6. "Ultralong spin memory of optically excited single magnetic quantum dots," T. Gurung, S. Mackowski, H. E. Jackson, **L. M. Smith**, J. Kossut, and G. Karczewski, *Applied Physics Letters* **93**, 153114 (2008).
7. "High Purity GaAs Nanowires Free of Planar Defects: Growth and Characterization," Hannah J. Joyce, Qiang Gao, H. Hoe Tan, Chennupati Jagadish, Yong Kim, Melodie A. Fickenscher, Saranga Perera, Thang Ba Hoang, **Leigh M. Smith**, Howard E. Jackson, Jan M. Yarrison-Rice, Xin Zhang, and Jin Zou. *Advanced Functional Materials* **18**, 1-7 (2008).

8. "Nearly intrinsic lifetimes in twin-free GaAs/AlGaAs core-shell nanowire heterostructures," S. Perera, M.A. Fickenscher, H.E. Jackson, L.M. Smith, J.M. Yarrison-Rice, H.J. Joyce, Q. Gao, H.H. Tan, C. Jagadish, X. Zhang, and J. Zou, *Applied Physics Letters* **93**, 053110 (2008).
9. "Polarized Photoluminescence and Time-resolved Photoluminescence from Single CdS Nanosheets," T. B. Hoang, L. V. Titova, A. Mishra, **L. M. Smith**, H. E. Jackson, K-Y Lee, H. Rho, J.M. Yarrison-Rice, Y.-J. Choi, K. J. Choi, and J.-G. Park, *Applied Physics Letters* **92**, 143112 (2008).
10. "Spatially-Resolved Photoluminescence Mapping of Single CdS Nanosheets," Heesuk Rho, Kyoung-Yeon Lee, Thang Ba Hoang, Lyubov V. Titova, Ashu Mishra, **Leigh M. Smith**, Howard E. Jackson, Jan M. Yarrison-Rice, Young-Jin Choi, Kyoung Jin Choi, and Jae Gwan Park, *Applied Physics Letters* **92**, 013111 (2008).
11. "Tuning spin properties of excitons in single CdTe quantum dots by annealing," K.P. Hewaparakrama, S. Mackowski, H.E. Jackson, L.M. Smith, W. Heiss, and G. Karczewski, *Nanotechnology* **19**, 125706 (2008).
12. "Resonant photoluminescence imaging and the origin of excited states in self-assembled quantum dots," T.A. Nguyen, S. Mackowski, T.B. Hoang, H.E. Jackson, **L.M. Smith**, J. Kossut, and G. Karczewski, *Physical Review* **B76**, 245320 (2007).
13. "Polarization and Temperature Dependence of Photoluminescence from Zincblende and Wurtzite InP Nanowires," A. Mishra, L.V. Titova, T.B. Hoang, H.E. Jackson, and **L.M. Smith**, J.M. Yarrison-Rice, Yong Kim, H.J. Joyce, Q. Gao, H. Hoe Tan, and C. Jagadish, *Applied Physics Letters*, **91**, 263104 (2007).
14. "Dynamics of Strongly Degenerate Electron-Hole Plasmas and Excitons in Single InP Nanowires," Lyubov V. Titova, Thang Ba Hoang, Jan M. Yarrison-Rice, Howard E. Jackson, Yong Kim, Hannah J. Joyce, Qiang Gao, H. Hoe Tan, Chennupati Jagadish, Xin Zhang, Jin Zou, and **Leigh M. Smith**, *Nano Letters* **7**, 3383-3387 (2007).
15. "Resonant Excitation and Imaging of Nonequilibrium Exciton Spins in Single Core-Shell GaAs-AlGaAs Nanowires," Thang Ba Hoang, Lyubov V. Titova, Jan M. Yarrison-Rice, Howard E. Jackson, Alexandre O. Govorov, Y. Kim, H. J. Joyce, H.H. Tan, C. Jagadish and **Leigh M. Smith**, *Nano Letters* **7**, 588-595 (2007).
16. "Relaxation dynamics of bimodally distributed CdSe quantum dots," P. Bajracharya, T.A. Nguyen, S. Mackowski, **L.M. Smith**, H.P. Wagner, U.W. Pohl, D. Bimberg, and M. Strassburg, *Physical Review B* **75**, 035321-1-8 (2007).
17. "Temperature-dependence of photoluminescence from single core-shell GaAs-AlGaAs nanowires," T.B. Hoang, L.V. Titova, J.M. Yarrison-Rice, H.E. Jackson, **L.M. Smith**, and C. Jagadish, *Appl. Phys. Lett.* **89**, 173126-1-3 (2006).

18. "Temperature dependent photoluminescence of single CdS nanowires," T.B. Hoang, L.V. Titova, J.M. Yarrison-Rice, H.E. Jackson, **L.M. Smith**, J.L. Lensch, and L.J. Lauhon, *Appl. Phys. Lett.* **89**, 123123-1-3 (2006).
19. "Low temperature photoluminescence imaging and time-resolved spectroscopy of single CdS nanowires," L.V. Titova, T.B. Hoang, J.M. Yarrison-Rice, H.E. Jackson, **L.M. Smith**, J.L. Lensch, and L.J. Lauhon, *Appl. Phys. Lett.* **89**, 053119 (2006).
20. "Resonant Raman Scattering from CdS Nanowires," A. Abdi, L. V. Titova, J.M. Yarrison-Rice, **L. M. Smith**, H. E. Jackson, J. L. Lensch, and L. J. Lauhon, *Appl. Phys. Lett.*, **88**, 043118, (2006).
21. L. V. Titova, Thang B. Hoang, H. E. Jackson, **L.M. Smith**, J.M. Yarrison-Rice, J.L. Lensch and L.J. Lauhon, " Low-Temperature Optical Characterization of Single CdS Nanowires," *Nanotechnology*, 2006. *IEEE-NANO 2006. Sixth IEEE Conference on*, **1**, 123-125 (2006).
22. A. Abdi, L.V. Titova, **L.M. Smith**, H.E. Jackson, J. M. Yarrison-Rice, J. L. Lensch and L. J. Lauhon, " Raman Spectroscopy as a Probe of Single Semiconductor Nanowires," *Nanotechnology*, 2006. *IEEE-NANO 2006. Sixth IEEE Conference on*, **1**, 137-139, (2006).
23. Thang B. Hoang, L. V. Titova, H. E. Jackson, **L.M. Smith**, J.M. Yarrison-Rice, Y. Kim, H. J. Joyce and C. Jagadish, " Imaging and optical properties of single core-shell GaAs-AlGaAs nanowires," *Nanotechnology*, 2006. *IEEE-NANO 2006. Sixth IEEE Conference on*, **1**, pp. 116-118 (2006)..
24. A. Abdi, L. V. Titova, **L. M. Smith**, H. E. Jackson, J. M. Yarrison-Rice, J. L. Lensch, and L. J. Lauhon, "Resonant Raman scattering from CdS nanowires," *Appl. Phys. Lett.* **88**, 043118 (2006).
25. A. Abdi, T. B. Hoang, S. Mackowski, **L. M. Smith**, H. E. Jackson, J. M. Yarrison-Rice, J. Kossut, and G. Karczewski, "Probing the excited state distributions of CdTe/ZnTe self-assembled quantum dots using resonant Raman scattering, " *Appl. Phys. Lett.* **87**, 183104 (2005).
26. S. Mackowski, T. Gurung, H. E. Jackson, **L. M. Smith**, G. Karczewski, and J. Kossut "Exciton-controlled magnetization in single magnetic quantum dots," *Appl. Phys. Lett.* **87**, 072502 (2005)
27. S. Mackowski, T. Gurung, T.A. Nguyen, H.E. Jackson, **L.M. Smith**, G. Karczewski, J. Kossut, M. Dobrowolska, J.K. Furdyna, "Exciton Spin Relaxation in Symmetric Self-Assembled Quantum Dots", *AIP Conference Proceedings* 772, 1357 (2005)

28. K.P. Hewaparakrama, S. Mackowski, H.E. Jackson, **L.M. Smith**, G. Karczewski, J. Kossut, "Photoluminescence Imaging of CdTe/ZnTe Self-Assembled Quantum Dots", AIP Conference Proceedings **772**, 711 (2005)
29. S. Mackowski, T. Gurung, H.E. Jackson, **L.M. Smith**, J. Kossut, G. Karczewski, "Optically Induced Magnetization of CdMnTe Quantum Dots", AIP Conference Proceedings **772**, 1327 (2005).
30. S. Mackowski, T. Gurung, F. Haque, T.A. Nguyen, H.E. Jackson, **L.M. Smith**, T. Schallenberg, K. Brunner, L.W. Molenkamp, "Spatial Diffusion of Carriers in a Quantum Dot System Grown by Shadow Mask Controlled Epitaxy", AIP Conference Proceedings **772**, 657 (2005)
31. T.A. Nguyen, T.B. Hoang, S. Mackowski, H.E. Jackson, **L.M. Smith**, J. Wrobel, K. Fronc, J. Kossut, G. Karczewski, "Morphology of CdTe/ZnTe Self-Assembled Quantum Dots Studied by Excitation Spectroscopy", AIP Conference Proceedings **772**, 677 (2005)
32. "*Sensitivity of exciton spin relaxation in quantum dots to confining potential,*" S. Mackowski, T. Gurung, H. E. Jackson, **L. M. Smith**, W. Heiss, J. Kossut, and G. Karczewski, Appl. Phys. Lett. **86**, 103101 (2005).
33. "*Subwavelength multichannel imaging using a solid immersion lens: Spectroscopy of excitons in single quantum dots,*" K. P. Hewaparakrama, A. Wilson, S. Mackowski, H. E. Jackson, **L. M. Smith**, G. Karczewski, and J. Kossut, Appl. Phys. Lett. **85**, 5463 (2004).
34. "*Optical studies of zero-field magnetization of CdMnTe quantum dots: Influence of average size and composition of quantum dots,*" T. Gurung, S. Mackowski, H. E. Jackson, **L. M. Smith**, W. Heiss, J. Kossut, and G. Karczewski, J. Appl. Phys. **96**, 7407 (2004).
35. "*Exciton spin relaxation in quasiresonantly excited CdTe/ZnTe self-assembled quantum dots,*" S. Mackowski, T. A. Nguyen, T. Gurung, K. Hewaparakrama, H. E. Jackson, **L. M. Smith**, J. Wrobel, K. Fronc, J. Kossut, and G. Karczewski Phys. Rev. **B70**, 245312 (2004).
36. "Resonant spectroscopy of II-VI self-assembled quantum dots: Excited states and exciton-longitudinal optical phonon coupling," T. A. Nguyen, S. Mackowski, H. E. Jackson, **L. M. Smith**, J. Wrobel, K. Fronc, G. Karczewski, J. Kossut, M. Dobrowolska, J. K. Furdyna, and W. Heiss Physical Review **B70**, 125306 (2004).
37. "Exciton-LO phonon interaction in II-VI self-assembled quantum dots," T.A. Nguyen, S. Mackowski, H.E. Jackson, **L.M. Smith**, G. Karczewski, J. Kossut, M. Dobrowolska, J.K. Furdyna, W. Heiss, Physica Status Solidi c **1**, 767-70 (2004).

38. "Optical studies of spin relaxation in CdTe self-assembled quantum dots," S. Mackowski, T. Gurung, T.A. Nguyen, K.P. Hewaparakrama, H.E. Jackson, **L.M. Smith**, J. Wrobel, K. Fronc, J. Kossut, G. Karczewski, *Physica Status Solidi c* **1**, 937-40 (2004).
39. "Optically controlled magnetization of zero-dimensional magnetic polarons in CdMnTe self-assembled quantum dots," S. Mackowski, T. Gurung, T.A. Nguyen, H.E. Jackson, **L.M. Smith**, J. Kossut, G. Karczewski, *Physica Status Solidi b*. **241**, 656-9 (2004).
40. "Optically-induced magnetization of CdMnTe self-assembled quantum dots," S. Mackowski, T. Gurung, T.A. Nguyen, H.E. Jackson, **L.M. Smith**, G. Karczewski, J. Kossut, *Applied Physics Letters*. **84**, 3337-9 (2004).
41. "Tuning the optical and magnetic properties of II-VI quantum dots by post-growth rapid thermal annealing," T. Gurung, S. Mackowski, H.E. Jackson, **L.M. Smith**, W. Heiss, J. Kossut, G. Karczewski, *Physica Status Solidi b* **241**, 652-5 (2004).
42. "Exciton Spin Relaxation Time in Quantum Dots Measured by Continuous-Wave Photoluminescence Spectroscopy", S. Mackowski, T. A. Nguyen, H. E. Jackson, **L. M. Smith**, J. Kossut, and G. Karczewski, *Applied Physics Letters* **83**, 5524-7 (2003).
43. "Tuning the Properties of Magnetic CdMnTe Quantum Dots", S. Mackowski, H.E. Jackson, **L.M. Smith**, W. Heiss, J. Kossut, and G. Karczewski, *Applied Physics Letters* **83**, 3575-9 (2003).
44. "Optical Properties of Annealed Self-Assembled CdTe Quantum Dots", S. Mackowski, **L.M. Smith**, H.E. Jackson, W. Heiss, J. Kossut, G. Karczewski, *Applied Physics Letters* **83**, 254 (2003).
45. "Nano-photoluminescence of CdSe self-assembled quantum dots: experiments and models," R.A. Jones, Jan M. Yarrison-Rice, **L.M. Smith**, Howard E. Jackson, M. Dobrowolska, and J.K. Furdyna, *Physical Review* **B 68**, 125333 (2003).
46. "Resonant and Non-Resonant Photoluminescence of CdSe/ZnSe and CdTe/ZnTe Self-Assembled Quantum Dots", T.A. Nguyen, S. Mackowski, H. Rho, L.M. Robinson, H.E. Jackson, **L.M. Smith**, S. Lee, M. Dobrowolska, J. Furdyna, G. Karczewski, *Proceedings of the 26th International Conference on the Physics of Semiconductors* ed. A R Long and J H Davies, Edinburgh 2002, Institute of Physics Conference Series **171**, H157 (2003). cond-mat/0309411
47. "Magneto-photoluminescence measurements of symmetric and asymmetric CdSe/ZnSe self-assembled quantum dots," K.P. Hewaparakrama, N. Mukolobwicz, **L.M. Smith**, H.E. Jackson, S. Lee, M. Dobrowolska, and J.K. Furdyna, *Proceedings of the 26th International Conference on the Physics of Semiconductors* ed. A R Long and J H Davies, Edinburgh 2002, Institute of Physics Conference Series **171**, H155 (2003). cond-mat/0309002

48. "Optical Properties of Semimagnetic Quantum Dots", S. Mackowski, T.A. Nguyen, H.E. Jackson, **L.M. Smith**, G. Karczewski, J. Kossut, W. Heiss *Material Research Society Symposium Proceedings*, **737**, E9.1.1 (2003).
49. "Resonant Photoluminescence and Excitation Spectroscopy of CdSe/ZnSe and CdTe/ZnTe Self-Assembled Quantum Dots", T.A. Nguyen, S. Mackowski, H. Rho, H.E. Jackson, **L.M. Smith**, J.Wrobel, K. Fronc, J. Kossut, and G. Karczewski, M. Dobrowolska, J. Furdyna, *Material Research Society Symposium Proceedings*, **737**, E9.2.1 (2003).
50. "Resonant nano-photoluminescence of single CdSe/ZnSe self-assembled quantum dots," **L.M. Smith**, H. Rho, L.M. Robinson, H.E. Jackson, M. Dobrowolska, and J.K. Furdyna, *Technical Digest. Summaries of papers presented at the Quantum Electronics and Laser Science Conference. Postconference Technical Digest (IEEE Cat. No.01CH37172)*. 2001. p. 86.
51. "Probing CdSe/ZnSe self-assembled quantum dots by cw and time-resolved photoluminescence," H. Rho, L.M. Robinson, N. Mukolobwicz, **L.M. Smith**, H.E. Jackson, S. Lee, M. Dobrowolska, H.E. Jackson, *Physica E*, **11**, 59 (2001).
52. "Interface phonons in CdSe/ZnSe self-assembled quantum dot structures," H. Rho, **L.M. Smith**, H.E. Jackson, S. Lee, M. Dobrowolska, and J.K. Furdyna, *physica status solidi (b)*, **224**, 165 (2001).
53. "Excited state dynamics in InAlGaAs/AlGaAs self-assembled quantum dots," **L.M. Smith**, K. Leosson, J. Erland, J.R. Jensen, J.M. Hvam, and V. Zwiller, *physica status solidi (b)*, **224**, 447 (2001).
54. "Exciton kinetics in self-assembled CdSe/ZnSe quantum dots," **L.M. Smith**, L.M. Robinson, H. Rho, H.E. Jackson, S. Lee, M. Dobrowolska, and J.K. Furdyna, *Quantum Electronics and Laser Science Conference (QELS 2000). Technical Digest. Postconference Edition. TOPS Vol.40 (IEEE Cat. No.00CH37089)*. 2000. p. 87.
55. "Phonon-related exciton relaxation in CdSe self-assembled quantum dots," H. Rho, L.M. Robinson, **L.M. Smith**, H.E. Jackson, S. Lee, M. Dobrowolska, and J.K. Furdyna, to be published in *Proceedings of the 25<sup>th</sup> International Conference on the Physics of Semiconductors, Osaka, Japan (2000)*.
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58. "Evidence for 2D precursors and interdiffusion in the evolution of self-assembled CdSe quantum dots on ZnSe," C.S. Kim, M. Kim, J.K. Furdyna, M. Dobrowolska, S. Lee, H. Rho, **L.M. Smith**, H.E. Jackson, E.M. James, Y. Xin, and N.D. Browning, *Physical Review Letters* **85**, 1124 (2000).
59. "Optical observation of quantum-dot formation in sub-critical CdSe layers grown on ZnSe," C.S. Kim, M. Kim, S. Lee, J.K. Furdyna, M. Dobrowolska, H. Rho, **L.M. Smith**, and H.E. Jackson, *Journal of Crystal Growth* **214-215**, 761 (2000).
60. "Origin of two types of excitons in CdSe dots on ZnSe," S. Lee, J.C. Kim, H. Rho, C.S. Kim, **L.M. Smith**, H.E. Jackson, J.K. Furdyna, and M. Dobrowolska, *Physical Review* **B61**, R2405 (2000).
61. "Quantum dots exciton dynamics through a nano-aperture: Evidence for two confined states," L.M. Robinson, H. Rho, J.C. Kim, Howard E. Jackson, **L.M. Smith**, S. Lee, M. Dobrowolska and J.K. Furdyna, *Physical Review Letters* **83**, 2797 (1999).
62. "Temperature-dependent micro-photoluminescence of individual CdSe self-assembled quantum dots," J.C. Kim, H. Rho, **L.M. Smith**, Howard E. Jackson, S. Lee, M. Dobrowolska and J.K. Furdyna, *Applied Physics Letters* **75**, 214 (1999).
63. "Micro-Photoluminescence of Self-Assembled Quantum Dots in CdSe/ZnSe Structures," by J.C. Kim, L. Robinson, H.E. Jackson, **L.M. Smith**, J.K. Furdyna, *Proceedings of the 24<sup>th</sup> International Conference of the Physics of Semiconductors, Jerusalem, August 1998*, (World Scientific, Singapore 1999), CDROM.
64. "Temperature- and Density-Dependent Transport of Mobile EMP in ZnMnSe/ZnSe Multiple Quantum Wells," by T.B. Sun, **L.M. Smith** and B.T. Jonker, *Proceedings of the 24<sup>th</sup> International Conference of the Physics of Semiconductors, Jerusalem, August 1998*, (World Scientific, Singapore 1999), CDROM.
65. "Exciton Spin-Relaxation through LO Phonon Emission in a ZnMnSe/ZnFeSe Multiple Quantum Well," by A.R. Hodges, **L.M. Smith** and B.T. Jonker, *Proceedings of the 24<sup>th</sup> International Conference of the Physics of Semiconductors, Jerusalem, August 1998*, (World Scientific, Singapore 1999), CDROM.
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79. "Spin- and energy-relaxation of excitons in strained and relaxed  $Zn_{1-x}Mn_xSe$  epilayers," C.D. Poweleit, **L.M. Smith**, and B.T. Jonker, in *Proceedings of the 22nd International Conference on the Physics of Semiconductors, Vancouver* (World Scientific, Singapore, 1995), p. 2561.
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#### INVITED TALKS:

- "Quantum Phenomena in Semiconductor Nanowire Heterostructures," Invited Talk, 2009 MRS Fall Meeting, November 30 - December 4, 2009.
- "Quantum Phenomena in Semiconductor Nanowire Heterostructures," Invited Talk, 2009 Villa Conference on Interactions Among Nanostructures, St. Thomas, US Virgin Islands, September 6-11, 2009.
- "Probing the electronic and spin properties of single semiconductor nanowires," Invited Talk, The 136th Annual Meeting of the Minerals, Metals and Materials Society, February 25-March 1, 2007.
- "Probing the electronic and spin properties of single semiconductor nanowires," Colloquium, Department of Physics, University of Dayton, November 17, 2006.

"Probing the electronic and spin properties of single semiconductor nanostructures: From dots to wires," Colloquium, Department of Physics, Ohio University, May 11, 2006.

"Controlling nanomagnets with light," Invited Talk, Midwest Solid State Conference, October 30-31, 2004.

"Using exciton dynamics to probe the internal structure of CdSe/ZnSe self-assembled quantum dots," Seminar, Department of Physics, University of Lund, Sweden, February 2000.

"Using exciton dynamics to probe the internal structure of CdSe/ZnSe self-assembled quantum dots," Seminar, Research Center COM, Technical University of Denmark, September 1999.

"Using optics to probe excitons in CdSe self-assembled quantum dots," Colloquium, Department of Physics, State University of New York at Buffalo, April 1999.

"Using optics to probe excitons in CdSe self-assembled quantum dots," Solid State Seminar, Department of Physics, Ohio University, April 1999.

"Population Inversion of Spin-Polarized Excitons in ZnMnSe/ZnFeSe Quantum Wells," Solid State Seminar, Department of Physics, University of Notre Dame, February 1999.

"Population Inversion of a Spin-Polarized Excitation Gas in ZnMnSe/ZnFeSe multiple quantum wells," Solid State Seminar, Department of Physics, Purdue University, November 1997.

"Spin-transport of Exciton Magnetic Polarons in ZnMnSe/ZnSe multiple quantum wells," Solid State Seminar, Department of Physics, McMaster University, April 1997.

"Spin-transport of Exciton Magnetic Polarons in ZnMnSe/ZnSe multiple quantum wells," Solid State Seminar, Department of Physics, University of Pittsburgh, December 1996.

"Spin-Dynamics in  $Zn_{1-x}Mn_xSe$  epilayers," Colloquium, State University of New York at Buffalo, Dept. of Physics, May 1992

"Observation of Long-Lived Magneto-Polarons in  $Zn_{1-x}Mn_xSe/ZnSe$  Quantum Wells," Solid State Seminar, Ohio State University, Department of Physics, May 1992

"Radiative recombination and carrier lifetimes in surfacefree GaAs homostructures," Symposium of the Materials Research Society, Boston, 1989.

## EXTERNAL GRANTS:

*"Materials World Network: Collaborative Research: Exploring Reduced-Dimensional Behavior of Excitations in Tailored Semiconductor Nanowire Heterostructures,"* National Science Foundation through the Materials World Network Program: NSF DMR-0806700, Leigh M. Smith and Howard E. Jackson, \$396,000. NSF DMR-0806572, Jan Yarrison-Rice, \$96,000. 9/1/2008-8/31/2011.

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"Spin-Dynamics of Mn- and Fe-Based ZnSe Magnetic Heterostructures," National Science Foundation Grant, # DMR-9409049. \$240,000 over 3 years, L.M. Smith, Principal Investigator, September 1994 — September 1997.

"Acquisition of Time-Resolved Near-Field Spectrometer," National Science Foundation Grant #DMR 95-03853. \$50,000, Howard E. Jackson, Joseph T. Boyd and Leigh M. Smith, principal investigators, September 1995 — September 1996.

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## **GRADUATE AND UNDERGRADUATE STUDENT TRAINING:**

### Post-Doctoral Advisor to:

Aaron Wade (current)  
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Sebastian Mackowski (Professor at Copernicus University in Poland)  
Nathalie Mukolobwicz (Teacher at Saint Ursula Academy)  
James Kim (Research Scientist at LumiLeds)

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Karunananda Pemasiri (current)  
Parveen Kumar (current)  
Melodie Fickenscher (current)  
Saranga Perera (current)  
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Tak Gurung (PhD, August 2006, Asst. Professor at San Antonio College)  
Amensisa Abdi (PhD, August 2006, Asst. Prof. Eastern Iowa Comm. College.)  
Nguyen Anh Tuan (PhD, May 2006, Postdoc at University of Akron)  
Kapila Hewaparakrama (PhD, December 2005, Postdoc at Univ. of Louisville)  
Laurie Robinson (PhD, December 2000, now at Coherent Lasers, Inc.)  
Alex Hodges (PhD, December 2000, now at University of Vermont)  
Tseng Bao Sun (PhD, August 1999, Unknown)  
Greg Balchin (PhD September 1996, now Naval Research Laboratory)  
C.D. Poweleit, (PhD March 1995, now at Arizona State University)

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James Armstrong (Now at University of Florida)  
Beth Chitwood (AFIT/WPAFB)  
Ali Lowey (Boston University)  
Lynne Vettel (WPAFB)  
Dona-Lyn Coombe  
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David Posson (Postdoc University of Illinois, Department of Physics)