

### ***Department of Physics***

Chair: Dr. Lok C. Lew Yan Voon, 937-775-2954

<http://www.wright.edu/academics/physics/>

### ***Refereed publications and book chapters***

#### **Basista, B.**

Basista, B., Mathews, S., Tomlin, J., Farrell, A., Lunsford, S., & Slattery, W. (2005). Impact of multidimensional collaboration and dual appointments on teacher preparation. Chapter in S. Wagner & S. P. Meiring (Eds.), *The Story of SUSTAIN: Models of Reform in Mathematics and Science Teacher Education*, (pp. 139-158). Columbus: Ohio Resource Center for Mathematics, Science, and Reading.

Basista, B., Herrelko, J., Sandy, M., Lowell, C., Nedunuri, K., Okunade, S., Klofenstein, P., Roath, K., Aldridge, M., Ross, A., Thompson, C., Mathews, S., Tomlin, J., Rusch, T., Krakowski, R., Esprit, L., Johnson, J., Aimiwu, S. (2005). Miami Valley Regional Collaborative for improvement of science and mathematics. Chapter in S. Wagner & S. P. Meiring (Eds.), *The Story of SUSTAIN: Models of Reform in Mathematics and Science Teacher Education*, (pp. 159-180). Columbus: Ohio Resource Center for Mathematics, Science, and Reading.

#### **Farlow, G. C.**

Z. Fang, G.C. Farlow, B. Claflin, D. C. Look, “Deep Centers in Semi-insulating GaN”, *Proceedings of the 13th International Conference on Semiconducting and Insulating Materials*. Eds. Z Wang Y. Cen, and X. Ye, IEEE Publications Piscataway, NY, 2005) pp 29-36.

F. Tuistmo, K. Saarinen, D. C. Look, G. C. Farlow, 2005, “Introduction and Recovery of Point Defects in Electron-irradiated ZnO”, *Phys. Rev. B* 72, 085206-085216, (2005).

D. C. Look, G. C. Farlow, P. Reunchan, S. Limpijumnong, S. B. Zhang, K. Nordland, “Evidence for Native Donors in n-Type ZnO”, *Phys. Rev. Lett.*, 95, 225502-225504 (2005).

#### **Fang, Z.**

“Traps in AlGaIn/GaN/SiC heterostructures studied by deep level transient spectroscopy”, Z-Q. Fang, D.C. Look, D.H. Kim, and I. Adesida, *Appl. Phys. Lett.* 87, 182115 (2005).

“Identification of donors, acceptors, and traps in bulk-like HVPE GaN”, D.C. Look, Z-Q. Fang, and B. Claflin, *J. Crystal Growth* 281 143 (2005).

“Giant traps associated with extended defects in GaN and SiC”, D.C. Look, Z-Q. Fang, A. Krtischil, and A. Krost, *Phys. Stat. Sol.* © 2, 1039 (2005).

“Thermal Stimulated Current Spectroscopy and Photoluminescence of Carbon-Doped Semi-Insulating GaN Grown by Ammonia-Based Molecular Beam Epitaxy”, Zhaoqiang Fang, David C. Look, Soufien Haffouz, Haipeng Tang, and Jim Webb, *Phys. Stat. Sol.* © 2, 2757 (2005).

“Thermal Stimulated Current Spectroscopy of High-Purity Semi-Insulating 4H-SiC Substrates”, Z-Q. Fang, B. Claflin, D.C. Look, L. Polenta, and W.C. Mitchel, *J. Electron. Mater.* 34, 336 (2005).

“Deep Centers in Conductive and Semi-Insulating GaN”, Zhaoqiang Fang, Gary Farlow, Bruce Claflin, and David Look, *Proceedings of the 13th International Conference on Semiconducting and Insulating Materials*. Eds. Z-G. Wang Y-H. Chen, and X-L. Ye, (IEEE Inc., Piscataway, NJ, 2005), p 29.

**Foy, B.D.**

Karpinets TV, Foy BD. Tumorigenesis: the adaptation of mammalian cells to sustained stress environment by epigenetic alterations and succeeding matched mutations, *Carcinogenesis*, 26(8): 1323-1334, 2005.

**Fox, J.**

J. L. Fox and L. J. Paxton, C and C+ in the Venusian thermosphere/ionosphere. *J. Geophys. Res.* Doi:10.1029/2004JA0108183, 2005.

C. T. Russell et al., Ion cyclotron waves in the Saturnian magnetosphere associated with Cassini’s engine exhaust. *Geophys. Res. Lett.* 32, L14S01 (2005).

V. Kharchenko, A. Dalgarno and J. Fox, Thermospheric distribution of fast O(1D) atoms, *J. Geophys. Res.* 111, A12305 (2005).

**Hunt, A.**

Hunt, A. G., *Percolation and Porous Media (I)* Springer Verlag’s “Lecture Notes in Physics Series.” Publication date, September, 2005.

Hunt, A. G., S. Logsdon, and D. A. Laird, Percolation treatment of charge transfer in humidified smectite clays, *Soil Science Society of America Journal* 70: 14-23. (This paper is a result of the research funded by the Cooperative Agreement in 2004 between Wright State University and the Department of Agriculture).

Tsonis, A. A., J. B. Elsner, A. G. Hunt, T. H. Jagger, 2005, Global Temperature Fluctuations Regulate ENSO Frequency, *Geophysical Research Letters*, 32, L09701 10.1029/2005GL022875.

Steenhuis, T., Hunt, A. G., Parlange, J.-Y., and Ewing, R. P., 2005, Assessment of the Application of Percolation Theory to Water-Repellent Soils, *Australian Journal of Soil Research*, 43: 357-360.

Hunt, A. G., 2005, Percolation Theory and the Future of Hydrogeology (invited), *Hydrogeology Journal*, 13: 202-205.

Hunt, A. G., 2005, Continuum Percolation Theory for Saturation Dependence of Air Permeability, *Vadose Zone Journal*, 4: 134-138.

Hunt, A. G., and Skinner, T. E., 2005, Hydraulic Conductivity Limited Equilibration: Effect on Water-Retention Characteristics, *Vadose Zone Journal*, 4: 145-150.

Hunt, A. G., 2005, Comment on “Modeling low-frequency magnetic-field precursors to the Loma Prieta Earthquake with a precursory increase in fault-zone conductivity,” by M. Merzer and S. L. Klemperer, *Pure and Applied Geophysics*, DOI: 10.1007/s00024-005-2776-6

Hunt, A. G., 2005, Scale-dependent dimensionality cross-over; implications for scale-dependent hydraulic conductivity in anisotropic porous media, *Hydrogeology Journal*, DOI: 10.1007/s10040-005-0453-6

### **Koenig, K.**

Koenig, K. M. (October, 2005). A “Girls in Science” Program for Sixth Grade Girls, *Proceedings of Research on Women in Education Conference*, Dayton, OH.

Koenig, K. M. (October, 2005). Single Gender vs. Co-Ed Schools: Girls’ Performance in Math and Science, *Proceedings of the Research on Women in Education Conference*, Dayton, OH (I).

Endorf, R. J., Koenig, K. M., & Braun, G. (August, 2005). A Preliminary Study of the Effectiveness of Different Recitation Teaching Methods. *Proceedings of the American Association of Physics Teachers Physics Education Research Conference*, Salt Lake City, UT.

### **Kozlowski, G.**

Murai K., Hori J., Fujii Y., Shaver J., Kozlowski G., ”Study of magnetic flux pinning and flux jumps for polycrystalline MgB<sub>2</sub>”, *Cryogenics* 45, 415 (2005).

Kleismit R.A., El-Ashry M., Kozlowski G., Amer M.S., Kazimierczuk M.K., Biggers R.R., “Local dielectric and strain measurements in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> thin films by evanescent microscopy and Raman spectroscopy”, *Supercond. Sci. Technol.* 18, 1197 (2005).

Kleismit R.A., Kozlowski G., Biggers R.R., Maartense I., Kazimierczuk M.K., Mast D.B., “Characterization of local dielectric properties of superconductor YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> using evanescent microwave microscopy”, *IEEE Trans. Appl. Supercon.* 15, 2915 (2005).

### **Lew Yan Voon, L. C.**

R. Melnik, B. Lassen, L. Lew Yan Voon, M. Willatzen and C. Galeriu, Nonlinear strain models in the analysis of quantum dot molecules. *Nonlinear Analysis* 63, e2165-e2176 (2005).

M. Willatzen and L. C. Lew Yan Voon, Flow acoustics in periodic structures. *Ultrasonics* 43, 756-763 (2005).

M. Willatzen and L. C. Lew Yan Voon, Numerical implementation of the ellipsoidal wave equation and application to ellipsoidal quantum dots. *Comp. Phys. Commun.* 171, 1-18 (2005).

L. C. Lew Yan Voon, C. Galeriu, B. Lassen, M. Willatzen and R. Melnik, Electronic structure of wurtzite quantum dots with cylindrical symmetry. *Appl. Phys. Lett.* 87, 041906 (2005).

O. Reese, L. C. Lew Yan Voon and M. Willatzen, Interface optical phonons in triaxial ellipsoidal quantum dots. Proc. 27th Int. Conf. Phys. Semi., AIP Conf. Proc 772, 659-660 (2005).

M. Willatzen, B. Lassen, R. Melnik and L. C. Lew Yan Voon, Influence of aspect ratio on the lowest valence states of quantum rods. Proc. 27th Int. Conf. Phys. Semi., AIP Conf. Proc 772, 871-872 (2005).

L. C. Lew Yan Voon, B. Lassen, M. Willatzen, R. Melnik, Barrier localization in valence bands of modulated nanowires. Proc. 27th Int. Conf. Phys. Semi., AIP Conf. Proc 772, 873-874 (2005).

J. Gravesen, M. Willatzen and L. C. Lew Yan Voon, A quantum-mechanical particle confined to surfaces of revolution - truncated cone and elliptic torus case studies. Physica Scripta 72, 105-111 (2005).

J. Gravesen, M. Willatzen and L. C. Lew Yan Voon, Schrödinger problems for surfaces of revolution - the finite cylinder as a test example. J. Math. Phys. 46, 012107-1 (2005).

M. Willatzen and L. C. Lew Yan Voon, Theory of acoustic eigenmodes in parabolic cylindrical enclosures. J. Sound Vib. 286, 251-264 (2005).

S. Karazhanov and L. C. Lew Yan Voon, First-principles study of band parameters of III-V and II-VI zinc-blende compounds. Sov. Phys. Semiconductors 39, 177 (2005).

J. Gravesen, M. Willatzen and L. C. Lew Yan Voon, Schrödinger problems for surfaces of revolution - the finite cylinder as a test example. J. Math. Phys. 46, 012107 (2005).

#### **Look, D.**

K.P. Korona, A. Wysmolek, R. Stepniewski, J. Kuhl, D.C. Look, S.K. Lee, and J.Y. Han, "Dynamics of Ground and Excited States of Bound Excitons in GaN", J. Lumin. 112, 30, 2005.

D.C. Look, B. Claflin, G. Cantwell, S-J. Park, and G.M. Renlund, "Electrical Properties of ZnO", in "Zinc Oxide – A Material for Micro- and Optoelectronic Applications", NATO Science Series, ed. by N.H. Nickel and E. Terukov (Springer, Dordrecht, Netherlands, 2005) p.37.

Z-Q. Fang, D.C. Look, B. Claflin, S. Haffouz, H. Tang, and J. Webb, "Thermally stimulated current spectroscopy and photoluminescence of carbon-doped semi-insulating GaN grown by ammonia-based molecular beam epitaxy", phys. stat. sol. © 2, 2757 (2005).

C. H. Swartz, R. P. Tompkins, T. H. Myers, D. C. Look, J.R. Sizelove, H. Lu, W. J. Schaff, and L. F. Eastman, "Demonstration of Non-degenerate Electron Conduction in InN Grown By Molecular Beam Epitaxy", phys. stat. sol. © 2, 2250 (2005). (Look, Sizelove, and Eastman inadvertently left off in actual publication).

Z-Q. Fang, B. Claflin, D.C. Look, L. Polenta, and W.C. Mitchel, "Thermally stimulated current spectroscopy of high-purity semi-insulating 4H-SiC substrates", J. Electronic Mater. 34, 336 (2005).

Y.M. Strzhemechny, H.L. Mosbacker, S.H. Goss, D.C. Look, D.C. Reynolds, C.W. Litton, N.Y. Garces, N.C. Giles, L.E. Halliburton, S. Niki, and L.J. Brillson, "Shallow Donor Generation in ZnO by Remote Hydrogen Plasma", *J. Electronic Mater.* 34, 399 (2005).

D.C. Look, "Electrical and Optical Properties of ZnO", in *Oxide Semiconductors*, ed. by M. Kawasaki and T. Makino, *Semicond. Sci. Technol.* 20, S55-S61 (2005).

D.C. Look, Z-Q. Fang, and B. Claflin, "Identification of donors, acceptors, and traps in bulk-like HVPE GaN", *J. Crystal Growth* 281, 143 (2005).

D.C. Look, Z-Q. Fang, A. Krtschil, A. Krost, "Giant traps associated with extended defects in GaN and SiC", *phys. stat. sol.* © 2, 1039 (2005).

Z-Q. Fang, G. Farlow, B. Claflin, and D.C. Look, "Deep Centers in Conductive and Semi-insulating GaN", in *2004 13th International Conference on Semiconducting and Insulating Materials*, Ed. by Z.G. Wang, Y.H. Chen and X.L. Ye (IEEE, New York, 2005) p. 29.

E.V. Kalinina, A.E. Cherenkov, G.A. Onushkin, Ya. I. Alivov, D.C. Look, B.M. Ataev, A.K. Oamev, and C.M. Chukichev, "ZnO/AlGaN Ultraviolet Light Emitting Diodes", in "Zinc Oxide – A Material for Micro- and Optoelectronic Applications", NATO Science Series, ed. by N.H. Nickel and E. Terukov (Springer, Dordrecht, Netherlands, 2005) p.211.

F. Tuomisto, K. Saarinen, D. C. Look, and G.C. Farlow, "Introduction and recovery of point defects in electron-irradiated ZnO", *Phys. Rev. B* 72, 085206 (2005).

H. L. Mosbacker, Y. M. Strzhemechny, B.D. White, P. E. Smith, D C. Look, D. C. Reynolds, C. W. Litton, and L.J. Brillson, "Role of Near-Surface States in Ohmic-Schottky Conversion of Au Contacts to ZnO", *Appl. Phys. Lett.* 87, 012102, 2005.

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D-K. Hwang, H-S. Kim, J-H. Lim, J-Y. Oh, J-H. Yang, S-J. Park, K-K. Kim, D.C. Look, and Y.S. Park, "Study of the photoluminescence of phosphorus-doped p-type ZnO thin films grown by radio-frequency magnetron sputtering", *Appl. Phys. Lett.* 86, 151917 (2005).

D.C. Look and B. Claflin, "Electrical and Optical Properties of n-type and p-type ZnO", *Mater. Res. Soc. Symp. Proc.* 829, 351 (2005).

D.C. Look, H.L. Mosbacker, Y.M. Strzhemechny, and L.J. Brillson, "Effects of Surface Conduction on Hall-effect Measurements in ZnO", *Superlattices and Microstructures* 38, 406 (2005).

E.J. Egerton, A.K. Sood, R. Singh, Y.R. Puri, R.F. Davis, J. Pierce, D.C. Look, and T. Steiner, "P-type Doping Utilizing Nitrogen and Mn Doping of ZnO Using MOCVD for Ultraviolet Lasers and Spintronic Applications", *J. Electronic Mater.* 34, 949 (2005).

**Petkie, D.T.**

D. T. Petkie, I. Medvedev, M. Behnke, P. A. Helminger, and F. C. De Lucia, "The Rotational Spectra of the 7191, 6191 and 72 Vibrational States of Nitric Acid," *Journal of Molecular Spectroscopy*, 233(2), 189-196 (2005).

E. Ye, R. P. A. Bettens, F. C. De Lucia, D. T. Petkie, S. Albert, "Millimeter and Submillimeter Wave Rotational Spectrum of Pyridine in the Ground and Excited Vibrational States," *Journal of Molecular Spectroscopy*, 232(1), 61-65 (2005).

S. L. Widicus-Weaver, R. A. Bulter, B. J. Drouin, D. T. Petkie, K. A. Dyl, F. C. De Lucia, & G. A. Blake "Millimeter-wave and Vibrational State Assignments for the Rotational Spectrum of Glycoaldehyde," 2005, *Astrophysical Journal. Supplement series*, 158 (2), 188-192 (2005).

D. T. Petkie, F. C. De Lucia, E. L. Jacobs, S. K. Moyer, S. Murrill, C. E. Halford, C. Franck, "Active and passive millimeter and sub-millimeter-wave imaging," *Proceedings of SPIE: Passive Millimetre-Wave and Terahertz Imaging and Technology II*, 5989, (Bruges, Belgium, 27 Sept. 2005).

S. Murrill, E. L. Jacobs, S. K. Moyer, C. E. Halford, F. C. De Lucia, D. T. Petkie, "Terahertz imaging system performance model for concealed weapon identification," *Proceedings of SPIE: Passive Millimetre-Wave and Terahertz Imaging and Technology II*, 5989, (Bruges, Belgium, 27 Sept. 2005).

(I) F.C. De Lucia and D. T. Petkie "THz gas sensing with submillimeter techniques," *Proceedings of SPIE: Terahertz for Military and Security Applications III*, 5790, 528-535 (Orlando, FL, 28-29 March 2005).

F. C. De Lucia, D. T. Petkie, R. K. Shelton, S. L. Westcott, B. N. Strecker, "THz + 'X': a search for new approaches to significant problems," *Proceedings of SPIE: Terahertz For Military And Security Applications III*, 5790 (Orlando, FL, 28-29 March 2005).

**Skinner, T.E.**

Skinner, TE, Reiss, TO, Luy, B, Khaneja, N, and Glaser, SJ, "Tailoring the Optimal Control Cost Function to a Desired Output: Application to Minimizing Phase Errors in Short Broadband Excitation Pulses," *J. Magn. Reson.* 172, 17-23 (2005).

Luy, B, Kobzar, K, Skinner, TE, Khaneja, N, and Glaser, SJ, "Construction of Universal Rotations from Point to Point Transformations," *J. Magn. Reson.* 176, 179-186 (2005).

Hunt, AG, and Skinner, TE, "Hydraulic Conductivity Limited Equilibration: Effect on Water Retention Characteristics," *Vadose Zone Journal* 4, 145-150 (2005).

**Tebbens, S.**

Berman, G.A., D.F. Naar, A.C. Hine, G.R. Brooks, S.F. Tebbens, B.T. Donahue, and R. Wilson, 2005, *Geologic Structure and Hydrodynamics of Egmont Channel: An Anomalous Inlet at the Mouth of Tampa Bay*, *Journal of Coastal Research*, 21, 331-35.

Burroughs, S.M., and S.F. Tebbens, 2005, Power Law Scaling and Probabilistic Forecasting of Tsunami runup heights, *Pure and Applied Geophysics*, 162, 331-342.

Tebbens, S.F. and Burroughs, S.M., 2005, Forest fire burn areas in Western Canada modeled as self-similar criticality, *Physica D*, 211, 221-234.

### ***Presentations and invited talks***

#### **Basista, B.**

Basista, B. & Krakowski, R. (2005) Integrated Math, Physical Science, and Technology Professional Development Program. Presented at T3 regional meeting, April, 2005, Lima, Ohio. (I)

Petkie, D. & Basista, B. (2005) The spring-mass system and Newton's Laws. Presented at T3 regional meeting, April, 2005, Lima, Ohio. (I)

Smith, T. & Basista, B. (2005) Learning about sound using tuning forks and windchimes. Presented at T3 regional meeting, April, 2005 Lima, Ohio. (I)

Basista, B., Krakowski, R., Pennington, K. (2005) Integrated Science and Mathematics Teacher Professional Development Programs. Centers of Excellence Symposium on Mathematics and Science Teaching and Learning: "Connecting and Collaborating for Success." Akron, OH. September 29-30, 2005.

#### **Fang, Z.**

"Giant traps on surface of HVPE-grown freestanding GaN", Z-Q. Fang, D.C. Look, A. Krtshil, A. Krost, F.A. Khan, and I. Adesida, presented at 47th Annual TSM Electronic Materials Conference, University of California, Santa Barbara, June 22-24, 2005.

"Deep traps in high-purity semi-insulating 6H-SiC substrates: Thermally stimulated current spectroscopy", Z-Q. Fang, B. Claflin, D.C. Look, L. Polenta, J. Chen, T. Anderson, and W.C. Mitchel, presented at International Conference on Silicon Carbide and Related Materials, Pittsburgh, PA, September 18-23, 2005.

#### **Fox, J. L.**

Ion cyclotron waves associated with Cassini's engine exhaust products, C. T. Russell, J. S. Leisner, M. Dougherty, X. Blanco-Cano, and J. L. Fox, presented by C. T. Russell at the Annual Meeting of the European Geophysical Society, Nice France, April 29, 2005.

#### **Foy, B.D.**

He XJ, Foy BD. Detailed Stochastic Simulation of Transcription. Wright State NSF-REU poster session. August 15, 2005 (poster).

Paliy O, Frazier JM, Foy BD. Cell-Like Entity (CLE): stable, non-living biological construct. QB3 Life Engineering Symposium, San Francisco, CA, Aug 19-20, 2005 (poster).

Kelley-Loughnane N, Linger M, Narayanan L, Foy BD, Frazier JM. Understanding an in vitro Glutathione Synthetic Pathway. International Conference on Systems Biology, Boston MA, Oct. 2005 (poster).

Foy BD. Modeling of GSHA in vitro. Wright Patterson Air Force Base, Cellular Dynamics Group, February 2005 (talk).

Foy BD. BNS – Biomolecular Network Simulator, version 1.4. Wright Patterson Air Force Base, Cellular Dynamics Group, December 2005 (talk).

### **Hunt, A.**

Invited Plenary Talk, Understanding Complex Systems, 2005, University of Illinois, Urbana-Champaign.

Applications of percolation theory to stream fish distributions, Erin Kingdom, Yvonne Vadeboncoeur, Allen Hunt. Presented at Understanding Complex Systems, 2005, University of Illinois, Urbana-Champaign, May, 2005.

K distributions in variably saturated anisotropic media, A. Hunt, L. Blank, T. Skinner. Presented at American Geophysical Union Fall Meeting, S. F., 2005.

### **Koenig, K.**

Koenig, K. Girls in Science Program. Delivered to potential teachers and women scientists for program, August 2005 (talk).

Koenig, K. A successful club for girls that introduces them to math and science and careers in these fields. Greater Cincinnati Foundation - Forum Luncheon, December 2005 (invited talk).

### **Kozlowski, G.**

2005 CEC and ICMC Conference, Keystone, Colorado, August 29 – September 2, 2005.

7th European Conference on Applied Superconductivity, Vienna, Austria, 11 – 15 September, 2005.

### **Lew Yan Voon, L. C.**

DC electric field effects on the electron dynamics in rectangular quantum dots, H. Y. Ramirez, A. S. Camacho, and L. C. Lew Yan Voon. CLACSA, Brazil (Dec 2005).

Electronic structure of helically coiled carbon nanotubes, G. Guzman-Verri and L. C. Lew Yan Voon. Contributed paper at the Fall Meeting of the Materials Research Society (Boston, Nov 27-Dec 2, 2005).

Electronic properties of wurtzite-based nanowires, nanorods, and nanodots, L. C. Lew Yan Voon, C. Galeriu, B. Lassen, M. Willatzen and R. Melnik. Contributed paper at the Fall Meeting of the Materials Research Society (Boston, Nov 27-Dec 2, 2005).

Band structure of helical carbon nanotubes, G. Guzman-Verri and L. C. Lew Yan Voon. Contributed paper at the Fall Meeting of the Ohio Section American Physical Society (Cleveland State U., Oct 14-15, 2005).

Cubic is not isotropic! J. Platig and L. C. Lew Yan Voon. Contributed paper at the Fall Meeting of the Ohio Section American Physical Society (Cleveland State U., Oct 14-15, 2005).

2D modeling of carrier transport through semiconductor heterostructure nanowires. N. Radulovic, M. Willatzen, R. Melnik, and L. C. Lew Yan Voon. Contributed paper at the 2005 Minisymposium on Modeling Coupled and Transport Phenomena in Nanotechnology at the Third M.I.T. Conference on Computational Fluid and Solid Mechanics (June 14-17, 2005).

Semiconductor theory research at Wright State University. Poster, APS meeting, Ohio Section (Dayton, April 9, 2005).

Raman scattering from surface optic phonons in cylindrical and rectangular cross-sectional semiconducting nanowires, Qihua Xiong, Jinguo Wang, L. C. Lew Yan Voon, and P. C. Eklund. Contributed paper at the March Meeting of the American Physical Society (Los Angeles, Mar 2005).

Band structure of wurtzite quantum dots with cylindrical symmetry, L. C. Lew Yan Voon, C. Galeriu, B. Lassen, M. Willatzen and R. Melnik. Contributed paper at the March Meeting of the American Physical Society (Los Angeles, Mar 2005).

Schroedinger eigenstates for surface-confinement problems, M. Willatzen, J. Gravesen and L. C. Lew Yan Voon. Contributed paper at the March Meeting of the American Physical Society (Los Angeles, Mar 2005).

Semiconductor theory research at Wright State University, Poster, Ohio Nanotechnology Summit (Dayton, March 2-3, 2005).

What can one do with band-structure theory? A semiconductor perspective. Seminar, Electronic Materials Group, WPAFB (July 7, 2005).

What can one do with band-structure theory? A semiconductor perspective. Condensed Matter and Surface Physics Colloquium, Ohio University (May 12, 2005).

Optical properties of semiconductors using band-structure models, Electro-Optics Colloquium, University of Dayton (February 25, 2005).

Nanotechnology, Cafe Scientifique (February 24, 2005).

#### **Petkie, D. T.**

M. Kipling, A. Jones, D. T. Petkie, I. Medvedev, A. Maeda, B. Drouin, P. Helminger, "The Rotational Spectrum of H15NO3," 2005 Joint Spring Meeting Ohio Section of APS and the Southern Ohio Section of AAPT, April 8-9, 2005, University of Dayton, Dayton, OH.

T. Petkie and F. C. De Luica, "Millimeter/Submillimeter Transmission, Scattering and Imaging Measurements," Joint Terahertz Imaging System Technology Assessment Meeting, Falls Church, VA, August 31-September 1, 2005.

D. T. Petkie, "Terahertz Imaging and Spectroscopy," THz Ohio Workshop, Wright State University, September 23, 2005.

**Skinner, T.E.**

Hunt, AG, Blank, LA, and Skinner, TE, "K Distributions in Variably Saturated Anisotropic Media," American Geophysical Union Fall Meeting, December, 2005, San Francisco, California.

**Tebbens, S.**

Barton, C.C., J. Smigelski, and S.F. Tebbens, 2005, Scaling Analysis of Tide Gauge Data from the East Coast of the United States, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract NG23E-0124.

Barton, C C, S.F. Tebbens, and S.M. Burroughs, 2005, Forecasting Shoreline Position: A nonlinear approach, European Geosciences Union, Geophysical Research Abstracts, vol. 7, EGU05-A-10471.

Burroughs, S.M., and S.F. Tebbens, 2005, Dune Retreat and Shoreline Change on the Outer Banks of North Carolina, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H51C-0385.

Burroughs, S.M., and S.F. Tebbens, 2005, Forest Fire Burn Areas Modeled as Self-Similar Criticality, Eos Trans. AGU, 85(47), Fall Meet. Suppl., Abstract NG33A-0886.

Smigelski, J., S.F. Tebbens, and C.C. Barton, 2005, Scaling Analysis of Water Level Records from the North American Great Lakes, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract NG23E-0125.

Tebbens, S.F., A. Murray, and A.D. Ashton, 2005, Quantifying Coastal Change Patterns using LIDAR, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H31E-1351.

Tebbens, S.F., and S.M. Burroughs, 2005, Forest fire burn areas in Western Canada modeled as self-similar criticality, European Geosciences Union, Geophysical Research Abstracts, vol. 7, EGU05-A-10482.

*Invitation to chair symposia*

*Editorial board membership*

*Granting agency study section membership*

*Offices in national professional organization*

*Special events, symposia or colloquia*

Wright State University Honors Dialogue, "The December 26, 2004 Indonesian Tsunami: A predictable human disaster?" Sarah Tebbens. January 10, 2005.

Honors Seminars of Metropolitan Dayton series, "Tsunamis: understanding the December 26, 2004 disaster," Sarah Tebbens. February 24, 2005.

Physics Department Annual Scholarship Presentation/Halloween Party.

Research Experience for Undergraduates (summer 2005). Funded by NSF and attended by 10 students.

Terahertz Ohio Workshop (Student Union E163, Sep 23). Organizer: Doug Petkie.

Seminars:

Nanoscience at Ohio University: Spying on Coherent Processes with Quantum Dots, Sergio Ulloa (Ohio U).

Ab Initio Studies of Defects and Band Parameters of Semiconductors, Smagul Karazhanov (Tashkent U, Uzbekistan).

Nanomaterials and Nanotechnology, Liming Dai (Director, Nanotechnology Center, U. Dayton).  
Careers in Physics: A Personal Perspective, Richard Sutherland (SAIC).

Cylindrical Vector Beams: Generation and Applications, Qiwen Zhan (U. Dayton).

Deflating Quantum Mysteries via the Relational Blockworld, Mark Stuckey (Elizabethtown College).

Low Cost Carbon Nanofibers: Growth and Applications, Ron Jacobsen (Applied Sciences, Inc.).

Random Diode Arrays: From Photovoltaics to Biomembranes, Victor Karpov (U. Toledo).

Adaptation to the Edge of Chaos, Alfred Huebler (U. Illinois, Urbana-Champaign).

WSU/REU and AFIT Summer Internship Programs Presentations.

Senior project presentation: Amir Motamedi.

### ***Professional Development Leave***

none

### ***Awards to Faculty, Staff, Students***

The Physics Department awarded scholarships for 2005-2006 to the following students:  
Charles Phelps (Merrill Andrews Scholarship)  
Leah Bischoff, David Fultz (Physics Scholarship – CSC)

### ***Outreach Programs***

Take Your Sons and Daughters to Work Day (April 18). Participants: 10. Staff: Will Wagner.

### ***Society of Physics Students***

Four students were inducted into the Sigma Pi Sigma Physics Honorary Society  
(David Fultz, Mark Kipling, Charles Phelps, Kristin Wallen).

### ***Undergraduate Honors Students***

Amir Motamedi. Faculty mentor: Brent Foy. Project title: Neuron modeling.

### ***Off-campus or special interest courses***

### ***Graduate Students***