

Physics

Refereed publications and book chapters published

Basista, B., Mathews, S., Basista, B., Farrell, A., Tomlin, J. (2004) "Challenges and Enabling Factors in Accomplishing Reform of Science and Mathematics Teacher Preparation." *Teacher Education and Practice* 16 (4), 399-413. (R)

Basista, B., N. Howell (2004) *Concepts and Applications in Physics for Early Childhood Education Majors*. Student Course Manual for PHY 245 bound with selected chapters of Griffith, W.T. *The Physics of Everyday Phenomena*. McGraw Hill Custom Publishing, Boston.

Basista, B., N. Howell (2004) *Concepts and Applications in Physics I for Middle Childhood Education Majors*. Student Course Manual for PHY 246 bound with Griffith, W.T. *The Physics of Everyday Phenomena*. McGraw Hill Custom Publishing, Boston.

Clark, J., "Below bandgap Photorefectance transitions in epitaxial GaN", Phil Yu, Jerry Clark, David Look, C.Q.Chen, Jinwei Yang, Edmundas Koutstis, Asif Kahn, Denis Tsvetkov, and Vladimir Dmitriev, *Applied Physics Letters*, 85, p1931-1933, (2004).

Fang, Z.-Q., "Annealing of Defect Density and Excess Currents in Si-Based Tunnel Diodes Grown by Low-Temperature Molecular- Beam Epitaxy", Sung-Yong Chung, Niu Jin, Ryan E. Pavlovicz, Paul .R. Berger, Ronghua. Yu, Zhaoqiang Fang, and Phillip E. Thompson, *J. Appl. Phys.* 96, 747 (2004).

Fang, Z.-Q., "Anomalous Capture and Emission From Internal Surface of Semiconductor Voids: Nanopores in SiC", D.C. Look, Z-Q. Fang, S. Soloviev, and T.S. Sudarshan, and J.J. Boeckl, *Phys. Rev. B* 69, 195205 (2004).

Fang, Z.-Q., "Electrical Characteristics of a 6H-SiC Epitaxial Layer Grown by Chemical Vapor Deposition on Porous SiC Substrate", Z-Q. Fang, D.C. Look, R. Chandrasekaran, S. Rao, S.E. Saddow, *J. Electron. Mater.* 33, 456 (2004).

Fang, Z.-Q., "An Experimental Set-Up for In Situ Hall Measurements Under High-Energy Electron Irradiation for Wide-bandgap Materials", C. Coskun, D.C. Look, G.C. Farlow, and Z-Q. Fang, *Meas. Sci. Technol.* 15, 297 (2004).

Farlow, G. C., "An Experimental Set-Up for In Situ Hall Measurements Under High-Energy Electron Irradiation for Wide-bandgap Materials", C. Coskun, D.C. Look, G.C. Farlow, and Z-Q. Fang, *Meas. Sci. Technol.* 15, 297 (2004).

Farlow, G. C., Avwaraye, Smith, Mitchel, and Farlow, *Mat. Research Society Proceeding Vol. 815 (Materials Research Society Warren Pa, 2004) J1.4.1- J1.4.6.*

Fox, J. L., Advances in the aeronomy of Venus and Mars, *Adv. Space Res*, 33(02), 132-139, 2004.

Fox, J. L., COtP dissociative recombination: A source of thermal and non-thermal C on Mars, *J. Geophys. Res.* 109, A08306, doi: 10.129/2004JA010514, 2004.

Fox, J. L., Liemohn, M. W., J. L. Fox, A. F. Nagy, and X. Fang, Hot carbon densities in the exosphere of Venus, *J. Geophys. Res.* 109, A10307, doi:10.1029/2004JA010643, 2004.

Fox, J. L., The effects of enhanced fluxes of soft x-rays on the Martian ionosphere, *J. Geophys. Res.* 109, A11310, doi:10.1029/2004JA010380, 2004.

Foy, B.D., Karpinets TV, Foy BD. Model of the developing tumorigenic phenotype in mammalian cells and the role of sustained stress, *Journal of Theoretical Biology* 227: 253-264, 2004.

Foy, B.D., Karpinets TV, Foy BD, Frazier JM. Tailored Gene Array Databases: Applications in Mechanistic Toxicology. *Bioinformatics* 20: 507-517, 2004.

Hunt, A. G., and Wu, Q. J., 2004 Climatic Influences on Holocene variations in soil erosion rates on a small hill in the Mojave Desert, *Geomorphology*, 58: 263-289.

Hunt, A. G., 2004, Continuum Percolation Theory for Water Retention and Hydraulic Conductivity of Fractal Soils: 1. Estimation of the Critical Volume Fraction for Percolation, *Advances in Water Resources* 27, 175-183.

Hunt, A. G., 2004, Continuum Percolation Theory for Water Retention and Hydraulic Conductivity of Fractal Soils: 2. Extension to Non-Equilibrium, *Advances in Water Resources* 27, 245-257.

Hunt, A. G., 2004, Comparing van Genuchten and percolation theoretical formulations of the hydraulic properties of unsaturated media, *Vadose Zone Journal* 3: 1483-1488.

Hunt, A. G., 2004, Continuum Percolation Theory and Archie's Law, 2004, *Geophysical Research Letters* 31 (19): art. no. L19503.

Hunt, A. G., 2004, Percolative Transport and Fractal Porous Media, *Chaos, Solitons, and Fractals*, 19, 309-325.

Hunt, A. G., and Elders W. 2004, Climate Change, and the Evolution of the Grand Canyon and Colorado River Delta, *The Colorado River: Origin and Evolution*, Grand Canyon Association Monograph no. 12, ed. R. A. Young and E. E. Spamer, 191-194.

Lew Yan Voon, L. C., M. Willatzen and L. C. Lew Yan Voon, Acoustic cavity modes in lens-shaped structures, *J. Acoustical Soc. Am.* 115, 84-90 (2004).

Lew Yan Voon, L. C., C. Galeriu, L. C. Lew Yan Voon, R. Melnik and M. Willatzen, Modeling a nanowire superlattice using the finite difference method in cylindrical polar coordinates, *Comp. Phys. Commun.* 157, 147-159 (2004).

Lew Yan Voon, L. C., L. C. Lew Yan Voon and M. Willatzen, On triaxial ellipsoidal quantum dots, *J. Phys. Cond. Matter* 16, 1087-1093 (2004).

Lew Yan Voon, L. C., L. C. Lew Yan Voon, B. Lassen, R. Melnik and M. Willatzen, Influence of aspect ratio on the lowest states of quantum rods, *Nano Letters* 4, 289-292 (2004).

Lew Yan Voon, L. C., M. Willatzen and L. C. Lew Yan Voon, Helmholtz equation in parabolic rotational coordinates: Applications to wave problems in quantum mechanics and acoustics, *Mathematics and Computers in Simulations* 65, 337-349 (2004).

Lew Yan Voon, L. C., M. Willatzen, R. Melnik, L. C. Lew Yan Voon and C. Galeriu, Quantum confinement phenomena in nanowire superlattice structures, *Mathematics and Computers in Simulations* 65, 385-397 (2004).

Lew Yan Voon, L. C., O. W. Reese, L. C. Lew Yan Voon and M. Willatzen, Surface optical phonons in triaxial ellipsoidal quantum dots, *Phys. Rev. B* 70, 075401 (2004). *Virtual J. Nano. Sci. Tech.* 8 (2004).

Lew Yan Voon, L. C., B. Lassen, L. C. Lew Yan Voon, R. Melnik and M. Willatzen, Exact envelope-function theory versus symmetrized Hamiltonian for quantum wires: A comparison, *Solid State Commun.* 132, 141 (2004).

Lew Yan Voon, L. C., Q. Xiong, G. Chen, J. D. Accord, X. Liu, J. J. Zengel, H. Gutierrez, J. M. Redwing, L. C. Lew Yan Voon, B. Lassen and P. C. Eklund, Optical properties of rectangular cross-sectional ZnS nanowires, *Nano Letters* 4, 1663 (2004).

Lew Yan Voon, L. C., Q. Xiong, J. Wang, P. C. Eklund, O. Reese, and L. C. Lew Yan Voon, Raman scattering from surface phonons in rectangular cross-sectional w-ZnS nanowires, *Nano Letters* 4, 1991 (2004).

L. C. Lew Yan Voon, B. Lassen, R. Melnik and M. Willatzen, Prediction of barrier localization in modulated nanowires. *J. Appl. Phys.* 96, 4660 (2004). *Virtual J. Nano. Sci. Tech.* 8 (2004).

Lew Yan Voon, L. C., M. Willatzen and L. C. Lew Yan Voon. Eigenmodes of triaxial ellipsoidal acoustical cavities with mixed boundary conditions, *J. Acoust. Soc. Am.* 116, 3279 (2004).

Look, D., D.C. Look and B. Claflin, "P-type Doping and Devices Based on ZnO", *phys. stat. sol. (b)* 241, 624 (2004).

Ya. I. Alivov, D.C. Look, B.M. Ataev, M.V. Chukichev, V.V. Mamedov, V.I. Zinenko, Yu. A. Agafonov, and A.N. Pustovit, "Fabrication of ZnO-based metal-insulator-semiconductor diodes by ion implantation", *Solid State Electronics* 48, 2343 (2004).

Look, D., F.D. Auret, J.M. Nel, L. Wu, W.E. Meyer, M.J. Legodi, M. Hayes, and D.C. Look, "Electrical characterization of NiO/ZnO structures", *phys. stat. sol. (c)* 1, 674 – 677 (2004).

Look, D., Z-Q. Fang, D.C. Look, R. Chandrasekaran, S. Rao, and S.E. Saddow, "Electrical characteristics of a 6H-SiC epitaxial layer grown by chemical vapor deposition on porous SiC substrate", *J. Electronic Mater.* 33, 456 (2004).

Look, D., D.M. Bagnall, Ya.I. Alivov, E.V. Kalinina, D.C. Look, B.M. Ataev, M.V. Chukichev, A.E. Cherenkov, and A.K. Oamev, "ZnO/AlGa_N ultraviolet light emitting diodes", *Mat. Res. Soc. Symp. Proc.* 798, 41 (2004).

Look, D., D.C. Look, B. Claflin, Ya. I. Alivov, and S.J. Park, "The future of ZnO light emitters", *phys. stat. sol. (a)* 201, 2203 (2004).

Look, D., Y.M. Strzhemechny, H.W. Mosbacker, D.C. Look, D.C. Reynolds, C.W. Litton, N.Y. Garces, N.C. Giles, L.E. Halliburton, S. Niki, and L.J. Brillson, "Remote hydrogen plasma doping of single crystal ZnO", *Appl. Phys. Lett.* 84, 2545 (2004).

Look, D., C. Coşkun, D.C. Look, G.C. Farlow, and J.R. Sizelove, "Radiation hardness of ZnO at low temperatures", *Semicond. Sci. Technol.* 19, 752 (2004).

Look, D., D.C. Reynolds, C.W. Litton, D.C. Look, J.E. Hoelscher, B. Claflin, T.C. Collins, J. Nause, and B. Nemeth, "High-quality, melt-grown ZnO single crystals", *J. Appl. Phys.* 95, 4802 (2004).

Look, D., P.W. Yu, J.D. Clark, D.C. Look, C.Q. Chen, J.W. Yang, E. Koutstis, M.A. Khan, D.V. Tsvertkov, and V.A. Dmitriev, "Below bandgap photoreflectance transitions in epitaxial GaN", *Appl. Phys. Lett.* 85, 1931 (2004).

Look, D., D.C. Look, G.L. Renlund, R.H. Burgener II, and J.R. Sizelove, "As-doped p-type ZnO produced by an evaporation/sputtering process", *Appl. Phys. Lett.* 85, 5269 (2004).

Look, D., Z-Q. Fang, D.C. Look, R. Armitage, Q. Yang, and E.R. Weber, "Thermally stimulated current spectroscopy of carbon-doped GaN grown by molecular beam epitaxy", *Mat. Res. Soc. Symp. Proc.* 798, 521 (2004).

Look, D., C.H. Swartz, R.P. Tompkins, T.H. Myers, D.C. Look, and J.R. Sizelove, "Characterization of Multiple Carriers in GaN Using Variable Magnetic-Field Hall Measurements", *J. Electronic. Mater.* 33, 412 (2004).

Look, D., F. Tuomisto, K. Saarinen, and D. C. Look, "Irradiation-induced defects in ZnO studied by positron annihilation spectroscopy" *phys. stat. sol. (a)* 201, 2219 (2004).

Petkie, D.T., T. Petkie, R. A. H. Butler, P. A. Helminger and F. C. De Lucia, "Molecular Structure, Spectral Constants, and Fermi Resonances in Chlorine Nitrate," *Journal of Molecular Structure* 695-6, 287-293 (2004).

Skinner, T.E., Kobzar, K, Skinner, TE, Khaneja, N, Glaser, SJ, and LUY, B, "Exploring the Limits of Broadband Excitation and Inversion Pulses," *J. Magn. Reson.* 170, 236-243 (2004).

Skinner, TE, Reiss, TO, Luy, B, Khaneja, N, and Glaser, SJ, "Reducing the Duration of Broadband Excitation Pulses Using Optimal Control with Limited RF Amplitude" *J. Magn. Reson.* 167, 68-74 (2004).

Tebbens, S., Burroughs, S.M, and S.F. Tebbens, Power-law scaling and probabilistic forecasting of tsunami runup heights, *PAGEOPH*, 162, 331-342 (released electronically by the journal in December 2004).

Yu, P., "Below bandgap Photoreflectance transitions in epitaxial GaN", Phil Yu, Jerry Clark, David Look, C.Q.Chen, Jinwei Yang, Edmundas Koutstis, Asif Kahn, Denis Tsvetkov, and Vladimir Dmitriev, *Applied Physics Letters* 85, p1931-1933, (2004).

Yu, P., "Optical characterization of self-assembled InAs quantum dots with InGaAs grown by molecular beam epitaxy", J. S. Kim, D. K. Oh, P. W. Yu, J., Y. Leem, J. I. Lee, and C.-R. Lee, *J. Cryst. Growth* 261, 38 (2004).

Presentations and invited talks

Basista, B., Improving Science and Mathematics Education - Issues and Challenges. (Physics Dept, WSU)

Basista, B., Initiatives to Improve Science and Mathematics Education. (Physics Dept, WSU)

Fox, J. L., Model studies of the structure of the Martian ionosphere for various solar fluxes in both the EUV and soft xray regions. INVITED talk presented at the Spring Meeting of the AGU (Joint with the CGU), Montreal, May, 2004.

Fox, J. L., Effects of DR on the Composition of Planetary Atmospheres, Invited talk presented at the Sixth International Conference on Dissociative Recombination: Theory, Experiments and Applications, Mosbach, Germany, July, 2004.

Fox, J. L., The role of ionosphere/thermosphere coupling processes in the escape of species from Mars, J. L. Fox and S. W. Bougher, Invited talk presented at the Fall Meeting of the AGU, San Francisco, December, 2004.

Foy, B. D., Implementation of Biochemical Complexes in Stochastic Simulations, Heidelberg, Germany, October, 2004.

Hunt, A. G., From Particle-Size to Sediment Dynamics, Delmenhorst Institute of Advanced Study, Federal Republic of Germany, March 2004.

Hunt, A. G., Scale Effect on the Hydraulic Conductivity: Reconciliation Of Theory And Experiment, European Geosciences Union, Nice, France, April 2004.

Hunt, A. G., Hydraulic Properties of Unsaturated Porous Media From Percolation Theory (I). Joint Canadian Geophysical Society and American Geophysical Union, Montreal, May 2004.

Hunt, A. G., Scale-Dependent Hydraulic Conductivity In Anisotropic Media: A Dimensional effect (I). Joint Canadian Geophysical Society and American Geophysical Union, Montreal, May 2004.

Hunt, A. G., Symposium on Understanding Complex Systems, University of Illinois Urbana-Champaign, May 2004.

Hunt, A. G., Continuum Percolation Theory for Natural Porous Media. Symposium on Understanding Complex Systems, University of Illinois Urbana-Champaign, May 2004.

Hunt, A. G., Western Pacific Geophysics meeting, Honolulu, Aug. 2004.

Hunt, A. G., Predicting Effects of Soil Structure on Hydraulic Properties (I). American Association of Agronomy, Crop Science Society of America and Soil Science Society of America annual meeting, Seattle, Nov 2004.

Hunt, A. G., Percolation Theory and the Future of Hydrogeology (I). Geological Society of America, Annual Meeting, Denver CO, Nov 2004.

Hunt, A. G., An Aid in Making Subsurface Hydrology Predictive. American Geophysical Union, Fall Meeting, San Francisco, Dec 2004.

Hunt, A. G., Global Temperature Fluctuations Regulate El Nino Frequency (I). A.A. Tsonis, J.B. Elsner, A.G. Hunt and T. H. Jagger. American Geophysical Union, Fall Meeting, San Francisco, Dec 2004.

Kozlowski, G., Mullin P., Kozlowski G., Kozlowski P.G., Busbee J.D., Jones J.G. Optical absorption modeling of arbitrary shaped nanoparticles. Proceedings of Nanotech 2004 Conference, Boston, MA, March 7-11, 2004.

Kozlowski G., Biggers R.R., Jones J.G., Maartense I., Bing R., Kerns R., Peterson T.L. Study of epitaxial growth of CeO₂ single buffer layer on textured substrate. Proceedings

of 106th Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, Indiana, April 18-21, 2004.

Kozlowski G., Biggers R.R., Jones J.G., Maartense I., Bing R., Kerns R., Peterson T.L. Role of CuO as a diffusion buffer layer in fabrication of YBCO coated conductor by pulse laser deposition. Proceedings of 106th Annual Meeting and Exposition of the American Ceramic Society, Indianapolis, Indiana, April 18-21, 2004.

Kleismit R.A., Kozlowski G., Biggers R.R., Maartense I., Kazimierczuk M.K., Riechers R.G., Mast D.B. Characterization of local dielectric properties of YBCO using evanescent microscopy. Proceedings of ASC'04, Jacksonville, FL, October 3-8, 2004.

Biggers R.R., Kozlowski G., Bing R.T., Maartense I., Campbell A.L., Green S.A., Peterson T.L. PLD of ultra thin buffer layer strongly effects YBCO thin film structure and properties. Proceedings of ASC'04, Jacksonville, FL, October 3-8, 2004.

Lew Yan Voon, L. C., From acoustic to nano cavities. Physics Colloquium, University of Costa Rica (June 2, 2004).

Lew Yan Voon, L. C., Valence band structure of quantum wires: Effects of size, shape, orientation, material system, and multiband model. L. C. Lew Yan Voon, B. Lassen, R. Melnik, and M. Willatzen. SLAFES 2004, Latin American Symposium on Solid State Physics (La Habana, Cuba, Dec 2004).

Lew Yan Voon, L. C., Interface optical phonons in triaxial ellipsoidal quantum dots. L. C. Lew Yan Voon, O. Reese and M. Willatzen. 27th International Conference on the Physics of Semiconductors (Flagstaff, Jul 2004).

Lew Yan Voon, L. C., Barrier localization in valence bands of modulated nanowires. L. C. Lew Yan Voon, B. Lassen, M. Willatzen, R. Melnik. 27th International Conference on the Physics of Semiconductors (Flagstaff, Jul 2004).

Lew Yan Voon, L. C., Influence of aspect ratio on the lowest valence states of quantum rods. M. Willatzen, B. Lassen, L. C. Lew Yan Voon and R. Melnik. 27th International Conference on the Physics of Semiconductors (Flagstaff, Jul 2004).

Lew Yan Voon, L. C., Quantum dot structures and nonlinear models for their analysis and computation. Melnik, Lassen, Lew Yan Voon, Willatzen and Galeriu. AIMS' Fifth International Conference on Dynamical Systems and Differential Equations (Pomona, June 16-19, 2004), p.105.

Lew Yan Voon, L. C., Nonlinear strain models in the analysis of quantum dot molecules. Melnik, Lassen, Lew Yan Voon, Willatzen and Galeriu. WNCA-2004, Fourth World Congress of Nonlinear Analysts (Orlando, June 2004).

Lew Yan Voon, L. C., Non-linear strain theory for low dimensional semiconductor structures. B. Lassen, R. Melnik, M. Willatzen and L. C. Lew Yan Voon. WNCA-2004, Fourth World Congress of Nonlinear Analysts (Orlando, June 2004).

Lew Yan Voon, L. C., Orientation effects on the band structure of quantum wires. B. Lassen, L. C. Lew Yan Voon, R. Melnik and M. Willatzen. Contributed paper at the March Meeting of the American Physical Society (Montreal, Mar 2004).

Lew Yan Voon, L. C., Valence-band energies of GaAs/AlGaAs and InGaAs/InP V-groove [1-10] quantum wires. B. Lassen, L. C. Lew Yan Voon, R. Melnik and M. Willatzen. Technical Proceedings of the 2004 Nanotechnology Conference and Trade Show, Volume 3, Chapter 2, p.49-52 (Boston, Mar 2004).

Petkie, D. T., Eddie Jacobs, Ronald G. Driggers, Keith A. Krapels, Frank C. De Lucia, Douglas T. Petkie, "Terahertz imaging performance model for concealed weapon identification," Proceedings of SPIE: Passive Millimetre-Wave and Terahertz Imaging and Technology, 5619, 98-107 (London, UK, 25-28 October 2004).

Petkie, D. T., D. T. Petkie, P. A. Helminger, Ivan Medvedev, Markus Behnke and Frank C. De Lucia, "The Millimeter and Submillimeter-Wave Spectrum of Nitric Acid: The 7191, 6191, and 72 Excited Vibrational States," 59th Ohio State University International Symposium on Molecular Spectroscopy, June 21-25, 2004, Columbus, Ohio.

Skinner, T.E., "BEBOP: Improving Performance in NMR Applications," 45th Experimental NMR Conference (ENC), April, 2004, Asilomar, California.

Skinner, T.E., "Optimal Control Theory: A Simple Overview with Applications," Physics Department, Wright State University, April 9, 2004.

Tebbens, S., Merging Physics, Geology, and Nonlinear Mathematics to Study Natural Earth Systems (Physics Dept, WSU).

Tebbens, S., The December 2004 Tsunami (Honors Dialogue).

Organizing/Hosting Special Events, Symposia or Colloquia

Physics Alumni event, 242 Fawcett; attended by 10 WSU Physics alumni.

Research Experience for Undergraduates (summer 2004). Funded by NSF and attended by 10 students.

Seminars:

Observations of Upper Atmospheric Phenomena: Waves, Meteors, Aurora. Yong-Ha Kim (Dept. of Astronomy and Space Sci., Chungnam Natl. University, Daejeon, S. Korea)

Laser Cooling and Trapping of Atoms. Doug Petkie (Physics, WSU)

Interaction of Electromagnetic Waves with Matter: Application to Nanoscience and Evanescent Microscopy. Gregory Kozlowski (Physics, WSU)

Molecular Billiards: Infrared Fluorescence Studies of Collisional Energy Transfer. David Dolson (Chemistry, WSU)

Organic Electronic Materials...an emerging technology. John B. Fersuson (AFRL, Polymer Branch, AFRL/MLBP, WPAFB)

Nanophotonics. Joseph W. Haus (Dir. Electro-Optics Program, University of Dayton)

Environmental Physics Using Results from Condensed Matter: Applying Percolation Theory. Dr. Allen G. Hunt (Physics, WSU)

Quantum Computing: FAQ's Dr. Greg Lafyatis (Physics, OSU)

BEB OP: Improving NMR Applications Dr. Thomas Skinner (Physics, WSU)

Choosing a Career in Biophysics Prof. Thomas L. Clanton (Biophysics Program, OSU)

Other Universes Joe Rosen (George Washington Univ.)

IT-based Eye versus Bionic Eye: Tyflos vs Kydon Dr. Nikolaos G. Bourbakis (Distinguished Prof., Computer Sci & Info Technology Research Institute, WSU)

From Acoustic to Quantum Cavities, Lok C Lew Yan Voon (Physics, Worcester Polytechnic Institute)

Physics of Confined Space Radiation Around the Earth, Walther Spjeldvik (Weber University)

On the issue of El Nino predictability, Prof. Anastasios Tsonis (Dept. of Math. Sciences, University of Wisconsin-Milwaukee)

High Resolution Angular Measurement of H-PDLC Transmission Gratings, Dean Brown (WSU EP student, senior project)

Design of Instrumentation to Obtain Cathodoluminescence Spectra, William Ford (WSU EP student, senior project)

Novel Cold-Head Design for In-Situ Photoluminescence and Cathodoluminescence Experiments During and After Electron Irradiation (Alan Henderson, WSUPhysics, Graduate Student)

Electrical and Optical Activation Studies of Si-Implanted GaN and $Al_xGa_{1-x}N$, Mee-Yi Ryu (Research Scientist, Univ. of Dayton)

TOPICS Directed Energy, Dr. Glen Perram (Air Force Inst. Of Tech., WPAFB)

Design and Optimization of the Chemical Sensing Capability of a Theoretical Biological Cell Using a Stochastic Simulation, Dinu Stoicovici (WSU Grad. Student, Thesis Defense)

Overview of the Dept of Defense (DOD) and AFIT's Efforts Relating to Space/Weather/Astro Physics, Major Della-Rose (AFIT, WPAFB)
WSU/REU and AFIT Summer Internship Programs Presentations

Realistic Rotations and Collisions of Rigid Objects, L. Blank (WSU Physics Sr. Project)

Semiconductor Nanowires - Is Smaller Better? Peter Eklund (Departments of Physics and Materials, Penn State U)

Air Space Pollutants and Environment. Prof. T. V. Ramakrishna Rao (Nova College of Engineering & Technology, India). Environmental Sciences/Physics seminar

Improving Science and Mathematics Education - Issues and Challenges. Beth Basista (Physics Dept, WSU)

Initiatives to Improve Science and Mathematics Education. Beth Basista (WSU)

Merging Physics, Geology, and Nonlinear Mathematics to Study Natural Earth Systems. Sarah Tebbens (Physics Dept, WSU)

Countering MANPADS Threat to Military and Civil Aircraft. Col. Robert Gaudette (AFRL, WPAFB)

Prime Control. J. Michaud and L. Tucker (Prime Control)

Fluid Dynamics Issues in Synthesis of Carbon Nanotubes. Alex Povitsky (Dept. of Mechanical Engineering, U. Akron)

Awards to Faculty, Staff, Students

The Physics Department awarded two scholarships for 2004-2005 to the following students:

Amir A. Motamedi (Merrill Andrews Scholarship)

Mark A. Cross (Physics Scholarship – CSC)

Outreach Programs

“Bring Your Child to Work” Day, April 22 (W. Wagner)

“Exploring Science”, organized by the College, Dec. 4-5. Building electric motors. (G. Farlow, Lok, and students)

Society of Physics Students - Served as facilitators for the Physics Department's participation in "Exploring Science"

Six students were inducted into the Sigma Pi Sigma Physics Honorary Society (L. A. Blank, M. Considine, A. Garcia, A. Henderson, W. Ford, J. Pitz).

Graduate Students

Mullin, Paul S. "Modeling Optical Absorption of Nanoparticles" (advisor: G. Kozlowski)

Pitz, Greg A. "Singlet Oxygen Kinetics in and Around a Double Microwave Discharge" (D. Petkie)

Stoicovici, Dinu I. "Design and Optimization of the Chemical Sensing Capability of a Theoretical Biological Cell Using a Stochastic Simulation" (advisor: B. Foy)