

GNE Dissertation and Thesis Summaries: 2005-2008:

Dissertations:

McCLORY, JOHN W., *The Effect of Radiation on the Electrical Properties of Aluminum Gallium Nitride/Gallium Nitride Heterostructures*. AFIT/DS/ENP/08-01. Faculty Advisor: Dr. James C. Petrosky. Sponsor: AFOSR and AFRL/RV.

PRINS, NICHOLAS J., *Distribution Iteration: A Robust Alternative to Source Iteration for Solving the Discrete Ordinates Radiation Transport Equations in Slab and XY-Geometries*. AFIT/DS/ENP/08-S04. Dr. Kirk A. Mathews: Sponsor: N/A.

BECK, ERIC V., *A Multireference Density Functional Approach to the Calculation of the Excited States of Uranium Ions*. AFIT/DS/ENP/07-01. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: Department of Energy, Idaho Operations Office.

KUCKO, JAY F. *Insulator Charging in RF MEMS Capacitive Switches*. AFIT/DS/ENP/05-02, Faculty Advisor: Dr. James C. Petrosky, (937) 255-3636, x4562. Sponsor: AFRL/SNHA.

Theses:

BLASY, BRYAN D., *Neutron Detection Utilizing Gadolinium Doped Hafnium Oxide Films*. AFIT/GNE/ENP/08-M02. Faculty Advisor: Lt Col David A. LaGraffe. Sponsor: AFRL/RD.

MATHER, DAVID E., *Discrete Counting of Short Lived Isotopes with Low Background Detectors*. AFIT/GNE/ENP/08-M03. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: N/A.

RAKES, KELLY D., *Evaluating the Response of Polyvinyl Toluene Scintillators Used in Portal*. AFIT/GNE/ENP/08-M04. Faculty Advisor: Dr. James C. Petrosky. Sponsor: N/A.

SMITH, BRIANA J., *Near-Time Characterization of a Domestic Nuclear Event Using Gamma Spectroscopy*. AFIT/GNE/ENP/08-M06. Faculty Advisor: Dr. Charles J. Bridgman. Sponsor: DHS/DNDO.

GRUEN, GREGGORY J., *Time Dependent Annealing Study of Silicon Implanted Aluminum Gallium Nitride*. AFIT/GMS/ENP/08-J01. Faculty Advisor: Dr. Yung Kee Yeo. Sponsor: AFOSR.

CARLSON, LONNIE, *Cobalt Doping of Semiconducting Boron Carbide using Cobaltocene*. AFIT/GNE/ENP/07-01. Faculty Advisor: LTC David LaGraffe. Sponsor: DTRA/CS.

GRAY, THOMAS E., *Investigation of Gate Current in Neutron Irradiated Al_xGa_{1-x}N/GaN Heterogeneous Field Effect Transistors Using Voltage and Temperature Dependence*. AFIT/GNE/ENP/07-02. Faculty Advisor: Dr. James C. Petrosky. Sponsor: AFRL/VS and AFOSR.

HARR, LOGAN J., *Precise Calculation of Complex Radioactive Decay Chains*. AFIT/GNE/ENP/07-03. Faculty Advisor: Dr. Kirk A. Mathews. Sponsor: Air Force Technical Applications Center.

JONES, CHRISTOPHER P., *High Resolution Mesoscale Weather Data Improvement to Spatial Effects for Dose-Rate Contour Plot Predictions*. AFIT/GNE/ENP/07-04. Faculty Advisor: Lt Col Steven T. Fiorino. Sponsor: DTRA/AFIT.

KLING, JOSEPH A. *The Sensitivity of RDD Contamination Predictions to Source Term Parameters*. AFIT/GNE/ENP/07-05. Faculty Advisor: Dr. Charles J. Bridgman. Sponsor: DTRA/TD

MAAS, MICHAEL R., *Directional Detection of Scattered Gamma Spectra by a Portable High Purity Germanium Detector*. AFIT/GNE/ENP/07-06. Faculty Advisor: Dr. Larry W. Burggraf. Sponsor: DTRA/AFIT.

DENTON, JAMES L. *Optimizing the Destruction of Chemical and Biological Munitions Stockpiles using Conventional Weapons while Minimizing Collateral Damage via Weather Exploitation*. AFIT/GNE/ENP/06-01, Faculty Advisor: Lt Col Steven Fiorino. Sponsor: NA.

HOBBS, EDWARD L. *Efficient and Accurate Computation of Elastic Cross Sections in the Single-Level Breit-Wigner Resonance Region*. AFIT/GNE/ENP/06-02, Faculty Advisor: Maj David W. Gerts. Sponsor: N/A.

KIM, WON S. *Determining Source and Shield/Scatter Geometry Using Spectra Collected from a Portable High Purity Germanium Detector*. AFIT/GNE/ENP/06-03, Faculty Advisor: Dr. Larry Burggraf. Sponsor: Defense Threat Reduction Agency.

MCHALE, STEPHEN, R. *Development of a Three-Dimensional Air Blast Propagation Model Based Upon the Weighted Average Flux Method*. AFIT/GNE/ENP/06-04, Faculty Advisor Dr. Kirk A. Matthews. Sponsor: N/A.

OVERBEEK, ROBERT J. *The Sensitivity of Radioactive Fallout Predictions to Source Term Parameters*. AFIT/GNE/06-05, Faculty Advisor: Dr. Charles J. Bridgman. Sponsor: Defense Threat Reduction Agency

PACE, KEVIN D. *Terrain and Spatial Effects on Hazard Prediction and Assessment Capability (HPAC) Software Dose-Rate Contour Plot predictions as Compared to a Sample of Local Fallout Data from Test Detonations in the Continental United States, 1945-1962*. AFIT/GNE/ENP/06-06m, Faculty Advisor: Lt Col Steven Fiorino. Sponsor: N/A.

WILLIFORD, RUSSELL S. *High-Altitude Neutron Transport Using a Ray-Integrating Monte Carlo Method*. AFIT/GNE/ENP/06-07, Faculty Advisor: Maj David W. Gerts. Sponsor: AFTAC/TT.

BRETT, GARY T. *Surface Oxidation Study of Uranium Dioxide Under Wet and Dry Conditions*. AFIT/GNE/ENP/05-01, Faculty Advisor: Dr. Larry W. Burggraf, (937) 255-3636 x4507. Sponsor: Idaho National Environmental and Engineering Laboratory.

CHANCELLOR, RICHARD W. *A Comparison of Hazard Prediction and Assessment Capability (HPAC) Software Dose-Rate Contour Plots to a Sample of Local Fallout Data From Test Detonations in the Continental United States, 1945-1962*. AFIT/GNE/ENP/05-02, Faculty Advisor: Dr. Charles J. Bridgman, (937) 255-3636 x4877. Sponsor: DTRA/TDOC.

ENGLERT, JOHN W. *In-line Particulate Transport and Dispersion Modeling Using the Regional Atmospheric Modeling System (RAMS)*. AFIT/GNE/ENP/05M-03, Faculty Advisor: Lt Col Steven T. Fiorino, (937) 255-3636 x4506. Sponsor: AFTAC (Air Force Technical Applications Center).

GOETZ, KRISTINA M. *Lethality of Bacillus Anthracis Spores Due to Short Duration Heating Measured Using Infrared Spectroscopy*. AFIT/GNE/ENP/05-04, Faculty Advisor: Dr. Larry W. Burggraf, (937) 255-3636 x4507. Sponsor: AFRL/HEPC.

JARZEN, THOMAS D. *Capacitance-Voltage Study on the Effects of Low Energy Electron Radiation on Al_{0.27}Ga_{0.73}N/GaN High Electron Mobility Transistor*. AFIT/GNE/ENP/05-05, Faculty Advisor: Dr. James C. Petrosky, (937) 255-3636 x4562. Sponsor: DTRA/CSNP.

KIMMEL, WARREN E. *Manufacture and Testing of an Activation Foil Package for Use in AFIDS*. AFIT/GNE/ENP/05-06, Faculty Advisor: Dr. James C. Petrosky, (937) 255-3636 x4562. Sponsor: DTRA HEADQUARTERS.

MATTHEWS, JAMES S., IV. *Effect of Neutrons on the N-MOS Controlled Thyristor*. AFIT/GNE/ENP/05-07, Faculty Advisor: Dr. James C. Petrosky, (937)255-3636 x4562. Sponsor: AFRL/MNMF.

ROTHENBUSH, FRED D. *Improved Multinuclide Imaging of Special Nuclear Material Using a High Purity Germanium Double Sided Strip Detector*. AFIT/GNE/ENP/05-09, Faculty Advisor: Dr. Larry W. Burggraf, (937) 255-3636 x4507. Sponsor: DTRA/TD.

SANDMAN, KARSON A. *Development of 2-Dimensional Cloud Rise Model to Analyze Initial Nuclear Cloud Rise*. AFIT/GNE/ENP/05-11, Faculty Advisor: Lt Col Steven Fiorino, (937) 255-3636 x4506. Sponsor: AFTAC (Air Force Technical Applications Center).

*SCHOOLS, CHAD C. *Feasibility Analysis of a Compton Spectrometer System for Identification of Special Nuclear Material*. AFIT/GNE/ENP/05-12, Faculty Advisor: Dr. Larry W. Burggraf, (937) 255-3636 x4507. Sponsor: DTRA/TDND and AFTAC/TMAT.

SKAAR, ERIC T. *A Comparison of the Heft Subsurface and Delfic Particle Size Distributions and Effects in HPAC*. AFIT/ENP/GNE/05M-13, Faculty Advisor: Dr. Charles J. Bridgman, (937) 255-3636 x4877. Sponsor: DTRA/TDOC.

SPEAR, JEFFREY S. *Characterizing a Neutron Energy Spectrum using a "Forward Edge" Neutron Time-of-Flight Spectroscopy Technique*. AFIT/GNE/ENP/05-14, Faculty Advisor: Dr. James C. Petrosky, (937) 255-3636 x4562. Sponsor: DTRA.

TALKINGTON, ADAM S. *Blast Computation Methodologies Comparison in Visual Interactive Site Analysis Code (VISAC)*. AFIT/GNE/ENP/05-15, Faculty Advisor: Dr. Ronald F. Tuttle, (937) 255-3636 x4536. Sponsor: DTRA/CSNP.

UHLMAN, TROY A. *Temperature Dependent Current-Voltage Measurements of Neutron Irradiated A10.27Ga0.73N/GaN Modulation Doped Field Effect Transistors*. AFIT/GNE/ENP/05M-16, Faculty Advisor: Dr. James C. Petrosky, (937) 255-3636 x4562. Sponsor: DTRA/SCSNN.