# 2007 Student Symposium

## Poster Presentations

| Poster # | | | |
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| | **Bioscience Rm. 630** | | |
| 1 | Brown | Ethan | Invariant Feature Recognition Using Dendritic Processing |
| 2 | DeAguero | Shannon | Examining the Role of Intracellular Tyrosine Residues in TLR4 Signaling |
| 3 | Duval | Nathan | Stability of Diverse Pathogens in Indoor Environments |
| 4 | Gleasner | Cheryl | Genome Sequencing: Yesterday, Today and Tomorrow |
| 5 | Hammon | Jessica | Deception Detection |
| 6 | Levy | Philippe | Respirate! An Analysis of CO2 Efflux Versus Water Content and Temperature in New Mexican Soils |
| 7 | Miller | Erica | Capture, Extraction, Amplification and Detection of Influenza A: Toward the Integration of Discrete Biological Steps on a Single Platform |
| 8 | Ortega | Stephen | Chromosome Isolation |
| 9 | Powers | Heath | Measuring Soil CO2 Fluxes and Stable Isotopes With a Chamber System and Tundable Diode Laser |
| 10 | Ray | Crystal | Riparian Area Surveys in Mortandad Canyon |
| 11 | Resnick | Jesse | Waveguide Based Optical Biosensor for the Detection of Disease Markers |
| 12 | Rodriguez | Alayna | Cloning of M. Tuberculosis Genes for the TB Structural Genomics Consortium |
| 13 | Sanchez | Timothy | Comparison of Proteomic Analysis Software |
| 14 | Smith | Amber | Within-Host Dynamics of Secondary Infections: Influenza and Streptococcus Pneumoniae |
| **Poster #** | **Chemistry Rm. 632** | | |
| 1 | Asani | Ernest | Design, Synthesis and Characterization of Metal-Organic Frameworks Based on the Organic Ligand 4-(1H-1,2,4-triazol-1-ylmethyl) Benzoic Acid |
| 2 | Boukhalfa | Sofiane | Redox Chemistry of Carbon Nanotubes |
| 3 | Brady | Christina | Multiplexed Assemblies for SERS-Detection Applications |
| 4 | Bretzke | Laina | Liquid-Liquid Plutonium Recovery Using Ionic Liquids |
| 5 | Cai | Lawrence | Preparation and Use of Novel Organosilanes for Biosensor Applications |
| 6 | Dugger | Jason | Study of Some Chemical Properties of Hypohalites |
| 7 | Guido | John | A Study of Decorporation Agents to be Used in the Event of a Dirty Bomb |
| 8 | Izraelevitz | Jacob | Determining the Porosity of Silica Thin Films Using Ellipsometry |
| 9 | Kluk | Chandra | Solution and Solid State Chemistry of Cerium (III/IV) in Alkaline Peroxide Carbonate Solution |
| 10 | Montoya | Willie | Removal of Trace Plutonium from Uranium Residues via Ion Exchange/Extraction Chromatography Systems |
| 11 | Price | Dominique | Aminopropylsilane-based SAMS: Stability Studies and Thiol Capture |
| 12 | Rabin | Scott | Ligand Design for Long-Range Electronic and Magnetic Coupling Between Polynuclear Metal-Ligand Complexes |
| 13 | Rastogi | Pawan | Recovery of Radioarsenic From Irradiated Se Targets and its Chelation With DMSA for Radiolabeling Purposes |
| 14 | Walsh | Courtney | Shock Chemistry Analysis of Tert-Butylacetylene and Trimenthysilylacetylene |
| 15 | Williamson | Kevin | Chemistry of U(VI) and Lanthanide (III) Complexes in Alkaline Carbonate-H2O2 Solutions |
| **Poster #** | **Computing Rm. 631** | | |
| 29 | Alexander | Lisa | Summer Workshop on Mining Legacy Fortran Code |
| 1 | Ambrosiano | Laura | Improving Web Visibility for National Security Story |
| 2 | Auxier | John | C-AAC MTE Equipment and Chemical Standards Database |
| 3 | Baker | Martin | Software for Humans |
| 25 | Balise | Dustin | Xen Vitualization Scaling and Enterprise Environment |
| 4 | Barela | Michael | Installation and Maintenance of Thermo-Hygrometer system for Standards & Calibration Laboratory |
| 5 | Blauert | Scott | The Facility Browser |
| 29 | Bowidowicz | Tom | Summer Workshop on Mining Legacy Fortran Code |
| 26 | Boyer | Colby | Comparison of 10GigE and InfiniBand Interconnects |
| 25 | Davydenko | Ekaterina | Xen Vitualization Scaling and Enterprise Environment |
| 27 | DeHerrera | David | PDMLink |
| 6 | Ferrell | Paul | A Communication System for FRNSE |
| 28 | Figg | Jeannette | Worldwide Collaborative Environments |
| 7 | Gutierrez | Samuel | Increasing The Long-Term Viability Of Open Source Performance Analysis Software |
| 29 | Ho | Karen | Summer Workshop on Mining Legacy Fortran Code |
| 8 | Iskander | Yousef | Compiling for Configurable Processors |
| 9 | Izraelevitz | Joseph | Analyzing Software Dependencies on Supercomputers |
| 29 | Kenyon | Zach | Summer Workshop on Mining Legacy Fortran Code |
| 10 | Kiedrowski | Brian | Implementation of CAD-Based Radiation Transport in MCNP6 Using DAGMC Capabilities |
| 11 | Knauss | Carl | Lujan Center PIX Firewall Project |
| 25 | Krutsch | Kevin | Xen Vitualization Scaling and Enterprise Environment |
| 12 | Kutac | Nicholas | Oracle MRP Implementation for Pit Manufacturing |

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| **28** | Larson | Amanda | Worldwide Collaborative Environments |
| **28** | Lewis | Heidi | Worldwide Collaborative Environments |
| **26** | Lopez | Joseph | Comparison of 10GigE and InfiniBand Interconnects |
| **13** | Lopez | Veronica | NERF-NEtwork Regression Test Framework |
| **14** | Lovato | Aaron | The Framework for Responding to Network Security Events: Protecting Data on the LANL Network |
| **15** | Lucero | Kimberly | Spares and Telecommunications Project |
| **16** | Manzanares | Adam | Wireless Penetration Testing and AirDefense Response |
| **29** | Mason | Daniel | Summer Workshop on Mining Legacy Fortran Code |
| **26** | McCormick | Kimberly | Comparison of 10GigE and InfiniBand Interconnects |
| **27** | Medina | Rey-Lynn | PDMLink |
| **28** | Merrigan | Dylan | Advance Health Monitoring of Computer Clusters |
| **17** | Meyers | Susan | The Anatomy of a 0 iframe Exploit |
| **28** | Morse | Caleb | Advance Health Monitoring of Computer Clusters |
| **18** | Ortiz | Larry | Bart's Preinstalled Environment (BartPE) Utility CTN-2 version 5.1 |
| **19** | Parag | Parimal | Achieving Desired Buffer Occupancy for a Single-Server Queue |
| **20** | Redman | Greg | Cryptology |
| **21** | Romero | Adrian | LANL HPC Monitoring Via Skummee |
| **28** | Salas | Sherry | Advance Health Monitoring of Computer Clusters |
| **22** | Santos | Ben | Roadrunner System Monitoring (RASilience + LANLx) |
| **23** | Slane | Del | Referential Content Management for Redundant Information |
| **24** | Stupka | Richard | Data Management and Visualization Through Google Earth |
| **29** | Sutherland | Landon | Summer Workshop on Mining Legacy Fortran Code |
| **29** | Swinhoe | George | Summer Workshop on Mining Legacy Fortran Code |
| **29** | Wang | Arick | Summer Workshop on Mining Legacy Fortran Code |
| **Poster #** | **Earth & Space Sciences Rm. 630** | | |
| | Butler | Michael | Relativistic Electrons at Geosynchronous Orbit |
| **2** | Curtis | Meredith | Application of Image Reconstruction Techniques to Mars Neutron Spectroscopy Data |
| **3** | Dvonch | Curt | Ultra-Precise Measurement Of Atmospheric Oxygen And Carbon Dioxide |
| **4** | Gogna | Karun | Environmental Fate of the Drilling Product "Quik-Foam" in Local Wells |
| **5** | Gray | Krista | The Response of Understory Vegetation to Pinon Mortality on the Pajarito Plateau. |
| **6** | Lucero | Christian | The Recovery of the Three-Dimensional Shear-Velocity Model From Surface-Wave Dispersion, Teleseismic Receiver Functions, and Gravity Observations Using the LSQR Inversion Method |
| **7** | Romero | Daniel | Baseline Radionuclide and Nonradionuclide Concentrations in Soils, Vegetation and Small Mammals at the Proposed Expansion Area at TA 54 Area G: 1994-2005 |
| **8** | Schmidt | Andrea | Superluminal Emission Processes as the Key to Understanding Pulsar Radiation |
| **Poster #** | **Engineering Rm. 632** | | |
| **1** | Bachmeier | Benjamin | Installation of Electromechanical Sysems in Glove Boxes |
| **2** | Bailon | Marcus | Reverse Engineering Laser Alignment System for T-Base Lathe |
| **4** | Bowyer | Justin | Development of Temperature-Mapping Systems for 1.3GHZ-9 |
| **38** | Brooks | John | Fast Closing Valve Timing Analysis |
| **5** | Cappiello | Marcus | The Effects of Large Scale Plastic Deformation on HT-9 |
| **6** | Clay | Benjamin | Stochastic Buffer Control Applied to Streaming Video |
| **35** | Day | Paul | Robotic Automation of Plutonium Oxide Packaging |
| **7** | Gibbs | Paul | The Straight and Narrow: Computer Modeling of Casting for GNEP |
| **8** | Gonzalez | Oscar | Tool Insert Development for Machining Plutonium |
| **9** | Guerra | Jorge | A Review of the Wet Vacuum System Designs in the Chemistry and Metallurgy Research Replacement Project |
| **10** | Hammetter | Chris | Probing Elastomer Foams with Dielectric Elastomer Devices |
| **11** | Herrera | Richard | Interference Fit of the 40mm Gas Gun Surrogate Samples |
| **12** | Hornsby | Fawn | An Assessment of the QUIC Dispersion Modeling System for Flow Around Isolated Buildings |
| **13** | Igle | Robert | Modeling of an Aerosol Collection Inlet for Interior Monitoring |
| **14** | Jackson | J. Matt | 3013 Headspace Gas Sampling Project |
| **15** | Jimenez- | Salomon | Finite Element Simulation of Electro Active Polymers |
| **16** | Karrels | Tyler | Improving Network Connectivity in Wireless Ad Hoc Networks |
| **17** | Limmer | David | Determination of the Hydrogen Concentration Distribution around a Crack Tip Using Numerical Analysis |
| **18** | Lischeske | Jim | Dynamics in Granular and Micro-Fluidic Flow |
| **19** | Lopez | Jacquelyn | Liquid-liquid Extraction of Iron(III) from Hydrochloric acid Solution by Dodecane, Tri-n-Butyl Phosphate, and Dodecanol |
| **20** | Maestas | Jessica | A High Pressure Gas Transfer System for the Operation of a Single Stage Light Gas Gun |

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| **38** | Martinez | Armando | Fast Closing Valve Timing Analysis |
| **36** | Martinez | Ricardo | Refurbishment of the Bell Jar Assembly |
| **21** | Martinez | Ray | Automation of Mechanical Systems |
| **22** | Martinez | Rebecca | Seismic Qualification of Gloveboxes |
| **23** | Mason | Aaron | The Use of Bis-triaminoguanidinium Azotetrazolate (TAGzT) as a Burning Rate Modifier |
| **24** | Miles | Jason | Glove Box Tools |
| **25** | Mourant | Kirsten | High Level Systems Model of the GNEP Fuel Cycle |
| **26** | Murdock | Hailey | 3He Permeation through Fused Silica Inertial Confinement Fusion Targets |
| **36** | Myers | Reese | Refurbishment of the Bell Jar Assembly |
| **27** | Nelson | Michael | Building a Prototype Heat Exchanger for the MTS at LANSCE |
| **28** | Paul | Blaise | Gas Dynamics Modeling for Pyrotechnically/Explosively Actuated Devices |
| **29** | Reckinger | Scott | Application of the Dynamically Adaptive Wavelet Collocation Method to Direct Numerical Simulation of Compressible Turbulent Mixing |
| **35** | Rector | Stuart | Robotic Automation of Plutonium Oxicde Packaging |
| **30** | Robles | Norique | Mechanical Aspects Associated with Data Systems |
| **31** | Rosales | Jose | Remote Handling Waste System |
| **32** | Shoemaker | Zachary | Design of a System to Manage Engine Exhaust Gas |
| **37** | Triplett | Brian | Development of a Test Suite for Verification and Validation of Nuclear Data |
| **37** | Triplett | Kristen | Development of a Test Suite for Verification and Validation of Nuclear Data |
| **36** | Unzueta | Michael | Refurbishment of the Bell Jar Assembly |
| **33** | Valdez | Lucas | Routine Performance Check for Optical Comparator Measuring Systems |
| **34** | Valdez | Mario | Coordinate Measuring Machine - Machine Checking Gage |
| **Poster #** | **Materials Science Rm. 632** | | |
| **1** | Dangelewicz | Andrea | Annealing Hardening of Nanostructured Metals |
| **2** | Sitarz | Stephanie | Synthesis and Characterization of Nanophosphors |
| **Poster #** | **Mathematics Rm. 632** | | |
| **1** | Stone | Timothy | Simulation of Airborne Contamination: Interpolation of Fixed Head Air Sample Data |
| **2** | Zhao | Longhua | Model of Air-Driven Mucus Clearance Mechanisms in Lungs |
| **Poster #** | **Non-Technical Rm. 632** | | |
| **1** | Altherr | Heather | Environment-Safety-Security Poster |
| **2** | Rendell | Bethany | The Defense Nuclear Security Lessons Learned Center |
| **3** | Purdy | Jennifer | Description of Mission Statement, Objectives and Strategic Planning for CTN-4 |
| **Poster #** | **Physics Rm. Lecture Hall** | | |
| **1** | Apgar | Brent | Deformation Modes and Activities and Texture Analysis of Stoichiometric ß' AuZn Using in-situ and ex-situ Neutron Diffraction |
| **2** | Castro | Maria | CMS Detector Effects on the Measured Z0 Mass Distribution |
| **3** | Grieco | Andrew | Precision Raman Spectral Analysis of Pre-1300 A.D. Redware Pottery Shards |
| **4** | Harrold | Samuel | Multi-Element Magnetic "B-dot" Probe |
| **5** | Haussman | Robert | Ion-Trap Potential Calculation for Large-Scale Quantum Information Processing |
| **6** | Hendryx | Jennifer | Calibration and Alignment of High Resolution Spectrometer for use on FRXL and RSX Plasma Experiments |
| **7** | Herrera | Mark | Complex Networks and Scientific Ideas: The Road to Revolution |
| **8** | Kindel | William | Axial Radiation Optimization on Sandia Z-Machine Using 1-D Computations |
| **9** | Krantz | Michael | A Theoretical Study of the Elastic Properties of AuZn |
| **10** | Leibs | Christopher | An Investigation of Mach-Zehnder Interferometry as a Diagnostic for Field Reversed Configuration Plasmas |
| **11** | Mangan | Niall | Intermittency in Nonlinear Dynamics: ac Driven Vortices |
| **12** | Martin | Sara | A Magnetophoresis Instrument for Sorting Magnetic Microparticles |
| **13** | Murray | Roy | Gamma Ray Detection |
| **14** | Neukirch | Levi | An exploration of Rb Optical Pumping Properties at Low Buffer Gas Pressures |
| **15** | Ogren | John | Frequency Quadrupled Laser System for Ytterbium 2+ Spectroscopy |
| **24** | Percel | Ian | Delta-f Variance Reduction Method for Radiation Transport |
| **17** | Sasa | Leslie | Neutron Reflectivity Studies of Polymer Response to Shear |
| **18** | Sirajuddin | David | Generation and Measurement of Magnetic Fields for the Driven Relaxation Experiment |
| **19** | Spencer | Josh | Parallelization of a Post-Processing Code for Cutting-Edge Rad-Hydro Codes Using MPI |
| **20** | Spieker | Dustin | Numerical Modelling of Gas-Gun Experiments in SX 358 Foam Using AMRITA |
| **21** | Tornga | Shawn | Imaging Algorithms Via List Mode Maximum Likelihood Expectation Maximization and the Prototype Compton Imager |
| **24** | Webster | Jennifer | Delta-f Variance Reduction Method for Radiation Transport |
| **23** | Wong | Thomas | Calculation of Elastic Differential Cross Sections for Proton-Helium Collisions Through the Use of High Performance Computing |

# 2007 Student Symposium

## Technical Talks

| | | | |
|---|---|---|---|
| | **Biosciences** | | |
| | Atlas | Jordan | Comparison of a Rule-Based and a Traditional Pathway Model of a Signal Transduction System |
| | Hanson | Joshua | Cell Endocytosis of Fluorescent Silica Nanoparticles |
| | Wilheim | Daniel | Evolution of Bacterial DNA Signatures |
| | Zelenay | Paulina | X-Ray Scattering Investigations of Siderophores Interacting with Model Biological Membranes |
| | **Chemistry** | | |
| | Hicks | Raea | Preparation and Luminescence Studies of Ru (II) Polypyridyl Complexes in Silica Nanoparticles. |
| | **Computing** | | |
| | Brock | Matthew | Tree-Based Overlay Networks in High-Performance Computing |
| | Cortez | Mandy | Searching the World Wide Web (WWW) with Efficiency |
| | Davydenko | Ekaterina | Xen Vitualization Scaling and Enterprise Environment |
| | Jackson | Julius | Writing and Executiting Test Cases in the Waste Compliance and |
| | Konwinski | Andrew | A Close Look at Large Parallel Work Loads |
| | Polte | Milo | Multidimensional Extensions to a Distributed Filesystem |
| | Ramsey | Scott | The Eigenvalue Problem of Reflected Shock Waves Generated by Symmetric Implosions |
| | Stan | Tiberiu | Automation of Authorization Requirements for Radioactive Waste Compliance |
| | Talachy | Henry | Implementing Reporting Capabilities in LANL's Waste Compliance and Tracking System |
| | Tietjen | Kelcey | Searching for Rootkits With Windows Memory Analysis Using EnCase |
| | **Earth/Space Sciences** | | |
| | Canfield | Jesse | Importance of Three-Dimensional Aspects in Wildfire Behavior |
| | Colantuono | Giuseppe | Topographically Intensified Rossby Basin Modes in a Two Layer Numerical Model |
| | Gramann | Jonathan | Atmospheric Aerosol and Cloud Interactions |
| | Nelson | Sarah | Two-Dimensional Modeling of a Fire or Plume in a Cross Flow and its Limitations |
| | Sauer | Jeremy | Impact of Multiple Fuels Representation in Wildfire Modeling |
| | **Engineering** | | |
| | Barnett | Nathan | One Group Transport Cross Section Generation for MCNP |
| | Canabal | Alberto | Coupled Thermal-Electromagnetic Model for the Analysis of Multilayer-Coated Superconducting Accelerating Structures |
| | Davis | Adam | A New Analytical Formula For Photon Buildup Factors In Dual-Layer Shields |
| | Geb | David | Practical DNA-Based Clinical Diagnostics |
| | Godoy | William | Modeling Radiation Heat Transfer in Multiphase Flows |
| | Harding | Lee | Electron Soft Collisions Using Moment Preserving Models in MCNP |
| | Jaworski | Jason | Optimization of CdZnTe Semiconductor Anode Electrodes Using Gallus |
| | Kienitz | Brian | A Half Cell Model of Steady State PEM Fuel Cell Performance Degradation Under Contamination by Foreign Cationic Species |
| | Marchi | Alexandria | Complexity of Acoustic Emission Spectra during In-process Monitoring of Pinch Welds |
| | Marzano | Matthew | Internal Electric Field Mapping of CZT Using Pockels Birefringence |
| | Nelson | Andrew | Development of Diffusion Bonding Parameters for HT9-W and HT9-Ta |
| | Solomon | Clell | A Linear Tally Combination Addition to MCNP |
| | **Materials Science** | | |
| | Niemeyer | Alyson | High Quantum Efficiency Polymer Photoconductors Using Interdigitated Electrodes |
| | **Mathematics** | | |
| | Coxe | Julianne | How Many Licks Does it Take to Get to the Center of a Tootsie Roll Pop? -OR- How Many Hours Does it Take to Model the Local Atomic Structure of a Sample? Two. Four.... Six.....Six! |
| | Godinez | Humberto | Sensitivity Analysis in a Cloud Resolving Aerosol Model |
| | **Non-Technical** | | |
| | Streeper | Charles | Nefarious Uses of Radioactive Materials |
| | **Physics** | | |
| | Brannon | Sean | Non-thermal Plasma Effects on Hydrogasification of Coal |
| | Brock | Jacob | Time Dependant Electron-Positron Pair Population in High-Energy Plasmas |
| | Chouinard | Emily | Modeling Electron Distributions and Radiation Spectra Produced in Gamma Ray Bursts |
| | Faust | Ian | Shielded Active Integrators for Use in Plasma Magnetic Field Diagnostics |
| | Fletcher | Samuel | Jet Measurements for QGP Experiments at CMS |
| | Gamble | John | Simulating a Quantum Ising Model on a Quantum Computer. |
| | Hayes | Tiffany | Measurement of Plasma Temperature |
| | Korzekwa | Richard | Hohlraum Reactions as a NIF Diagnostic |
| | Kraus | Richard | An Improved Design for Explosively Driven Flyer Plates |

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| | Li | Tony | The L ALPHA Spectra of Fe Ions |
| | Mastbaum | Andrew | Simulation and Characterization of a Dark Matter Detector |
| | Miller | Karen | Neutron Multiplication in Subcritical Systems |
| | Perepelitsa | Dennis | High-Energy Neutron-Induced Transitions in Natural Lead |
| | Tobash | Paul | Heavy Fermion Compounds: Understanding the Strong Electronic Correlations in f- Electron Systems |