

Nuclear Science and Technology Division

Director:

Anthony Hechanova

Researchers:

Denis Beller
Gary Cerefice
Kenneth Czerwinski
Thomas Hartmann
Jian Ma
Longzhou Ma

Part Time Researchers:

Jeanette Daniels
Joon Soo Lee
Ning Li
Valery Ponyavin
Woosoon Yim
Zhongbo Yu

Administrative Staff:

Rebecca Arbour
Steven Curtis
Cristalyne Estella
John Knoten
Kathleen Lauckner
Trevor Low (Laboratory Manager)
Thomas O'Dou (Radiation Lab. Director)
Leisa Rodriguez (Director of Finance)

Postdoctoral Researchers:

Cynthia Gong
Frederic Poineau
Tyler Sullens

Graduate Students:

Timothy Beller
Craig Bias
Julie Gostic
Richard Gostic
Matthew Hodges
Kiel Holliday
Lawrence Lakeotes
Ryan LeCounte
Yuyu Lin
Lisa Mullen
Quinten Newell
Wendy Pemberton
Richard (Troy) Robinson
Chinthaka Silva
Nick Smith
Evgeny Stankovskiy
Xiuju (Julia) Tan
Amber Wright
Charles Yeamans

Undergraduate Students:

Deborah Callaway
Ed Mausolfe
Lillian Ratliff
Tanya Sloma

Mission: The mission of the Nuclear Science and Technology Division is to conduct research and support academic programs regarding aspects of nuclear science and technology that are of interest to the community and sponsoring organizations.

Summary: The NSTD was formed in 2001 and houses a multi-disciplinary team with extensive expertise in radiochemistry, nuclear engineering, radioactive waste management, radiation detection and measurement, geology, environmental chemistry, risk assessment, and public communication. The division has state-of-the-art facilities including radiochemistry, radiation detection, transmission electron microscopy and a host of other analytical laboratories. The division also supports two academic programs: the Ph.D. program in Radiochemistry and the M.S. program in Materials and Nuclear Engineering. This year the structure of the division continued to evolve with the addition of a laboratory support group under the direction of Tom O'Dou, former UNLV Radiation Safety Officer. The division also implemented the reorganization of materials research under the coordination of adjunct professor Ning Li who is a technical group leader from Los Alamos National Laboratory. The research and academic activities of the division are well integrated with the UNLV campus with about a third of the

division's funding sub-awarded to academic departments (Mechanical Engineering, Chemistry, Civil Engineering, Physics, Health Physics, Electrical and Computer Engineering, and Geology). Only projects that are directly supervised by NTSD research faculty are identified in this report. Further information about projects can be found on the NSTD website at <http://nstg.nevada.edu>.

Completed Projects:

"Microbial Transformations of TRU and Mixed Wastes: Actinide Speciation and Waste Volume Reduction," a project awarded by DOE through the DOE Cooperative Agreement DE-FC02-04ER63733. Project started January 2004, ended November 30, 2006.

"Microbial Transformations of TRU and Mixed Wastes: Actinide Speciation and Waste Volume Reduction," a project awarded by DOE through the DOE Cooperative Agreement DE-FC02-04ER63733. Project started January 2005, ended November 30, 2006.

"Microbial Transformations of TRU and Mixed Wastes: Actinide Speciation and Waste Volume Reduction," a project awarded by DOE through the DOE Cooperative Agreement DE-FG02-04ER63733.2. Project started February 2006, ended November 30, 2006.

"Radiochemistry Education and Research Center," UNLV/RF Cooperative Agreement RF-06-RERC-001.01. Project started September 2006, ended December 31, 2006.

Ongoing Projects:

"UNLV Transmutation Research Program Administration," DOE Cooperative Agreements DE-FC07-06ID14781 and DE-FG-07-01AL67358.9. Project start date: June 2005. Project end date: May 31, 2007.

"Advanced Fuel Cycle Initiative (AFCI) FY 06 Transmutation Research Program," DOE Cooperative Agreement. Project start date: September 2006. Project end date: June 30, 2011.

"Dissolution, Reactor, and Environmental Behavior of ZrO₂-MgO Inert Fuel Matrix," TRP Task 19, DOE Cooperative Agreements DE-FC07-06ID14781 and DE-FG07-01AL67358.9. Project start date: March 2006. Project end date: June 30, 2007.

"Fundamental Chemistry of U and Pu in the TBP-Dodecane-Nitric Acid System," TRP Task 26, DOE Cooperative Agreement DE-FC07-06ID14781. Project start date: September 2006. Project end date: June 30, 2007.

"Reactor Physics Studies for the AFCI RACE (Reactor-Accelerator Coupling Experiments) Project," TRP Task 27, DOE Cooperative Agreements DE-FC07-06ID14781 and DE-FG07-01AL67358.9. Project start date: August 2005. Project end date: June 30, 2007.

"Impact of the Synthesis Process on Structure Properties for AFCI Fuel," TRP Task 28, DOE Cooperative Agreements DE-FC07-06ID14781 and DE-FG07-01AL67358.9. Project start date: September 2006. Project end date June 30, 2007.

"Investigation of Optical Spectroscopy Techniques for On-Line Materials Accountability in the Solvent Extraction Process," TRP Task 29, DOE Cooperative Agreements DE-FC07-06ID14781 and DE-FG07-01AL67358.009. Project start date: August 2005. Project end date: June 30,

2007.

“Combined Radiation Detection Methods for Assay of Higher Actinides in Separations Processes,” TRP Task 30, DOE Cooperative Agreement DE-FG07-01AL67358.9. Project start date: August 2005. Project end date: June 30, 2007.

“Synthesis and Properties of Metallic Tc and Tc-Zr Alloys as a Radioactive Storage Waste Form to Stabilize the Tc Waste Stream of the UREX+1 Process,” TRP Task 33, DOE Cooperative Agreement DE-FC07-06ID14781. Project start date: September 2006. Project end date: June 30, 2007.

“Solution-Based Synthesis of Nitride Fuels,” TRP Task 34, DOE Cooperative Agreement DE-FC07-06ID14781. Project start date: September 2006. Project end date: June 30, 2007.

“Criticality Studies of Dilute Plutonium Mixtures for UREX Processes,” TRP Task 35, DOE Cooperative Agreement DE-FC07-06ID14781. Project start date: September 2006. Project end date: June 30, 2007.

“Remote Radiation Detection by the Interception of Ultraviolet Scintillation,” Battelle Cooperative Agreement 00052644. Project start date: March 2006. Project end date: July 23, 2007.

“Deep Burn Separation and Repository Behavior,” DOE Cooperative Agreements DE-FC07-06ID14781 and DE-FG-07-01AL67358.9. Project start date: June 2005. Project end date: May 31, 2007.

“General Atomics - Reactor Physics Analysis,” Deep Burn Gas-cooled Reactor Project sub-award to General Atomics, DOE Cooperative Agreement DE-FC07-06ID14781. Project start date: September 2006. Project end date: June 30, 2007.

“High Temperature Heat Exchanger Project Administration,” UNLV/RF Cooperative Agreements Rf-05-HTHX-001.04 and RF-05-HTHX-001.05. Project start date: August 2006. Project end date: March 31, 2007.

“Further Development of Radiation Decontamination Methods on Building Surfaces,” DARPA Cooperative Agreement HR0011-06-C-0106. Project start date: July 2006. Project end date: January 18, 2007.

“Investigation of the Fundamental Surface Reactions Involved in the Sorption and Desorption of Radionuclides,” EPS/DOE Cooperative Agreement SFFA NSHE-07-22 and NVSHE Cooperative Agreement SFFA NSHE-07-26. Project start date: August 2006. Project end date: July 31, 2007.

Publications:

J. Ma, N. Li, S. Ignatiev and V. Kutanov, “Performance of magnetic Hydro-Dynamic Pump in Lead-Bismuth Eutectic Target Circuit (TC-1),” *Proceedings of ICAPP '06*, Reno, NV, p. 470-477, June 4-8, 2006.

N.A. Smith, G.S. Cerefice, and K.R. Czerwinski, “Application of Optical Techniques for On-Line Materials Accountability in the UREX Solvent Extraction Process,” *Proceedings, 47th Annual Institute For Nuclear Materials Management Annual Meeting*, Nashville, TN, July 20, 2006.

- A.E. Hechanova and R. Arbour, *University of Nevada, Las Vegas Transmutation Research Program Annual Report, Academic Year 2005-2006*, August 2006.
- D. Cook, Y. Chen, H. Chen and J. Ma, Numerical Modeling of Electromagnetic Pump Efficiency, COMSOL users conference, Las Vegas, NV, October 26-27, 2006.
- D.P. Cook, Y. Chen, L. J. Ratliff, H. Chen and J. Ma, Numerical Modeling of EM Pump Efficiency, *Proceedings*, ASME International Mechanical Engineering Congress and Exposition, Chicago, IL, November 5-10, 2006.
- V. Ponyavin, Y. Chen, T. Mohamed, M. Trabia, M. Wilson, and A.E. Hechanova, "Modeling and Parametric Study of a Ceramic High Temperature Heat Exchanger and Chemical Decomposer," *Proceedings*, ASME International Mechanical Engineering Congress and Exposition, Chicago, IL, November 5-10, 2006.
- V. Ponyavin, Y. Chen, T. Mohamed, M. Trabia, A.E. Hechanova, and M. Wilson, "Parametric Study of Sulfuric Acid Decomposer for Hydrogen Production," INES-2, 2nd COE-INES International Symposium on Innovative Nuclear Energy Systems, Yokohama, Japan, November 26-30, 2006.
- D. Beller, W. Kernan, M. Schanfein, T. Ward, A. Rimsky-Korsakov, F. Harmon, Q. Newell, L. Lakeotes, P. Attur, T. Beller, and R. LeCounte, "Combined Radiation Detection Methods for the AFCI MPAC Project," accepted for publication in the Proceedings of the 47th Annual Meeting of the Institute for Nuclear Materials Management, Nashville, TN (2006).
- P. Agostini, M. Ciotti, C. Petrovich, M. Carta, N. Elmi, L. Sansone, D. Beller, C. Krakowiak, and A. Bergeron, "Target Study for the RACE HP Experiment," *Proceedings of the 2006 International Conference on Nuclear Engineering*, ICONE 2006, Miami, FL (2006).
- V. Kulik, J. Lee, and D. Beller, "Dynamic Analysis of Space-Time Effects in the ISU RACE Configuration," *Nuclear Instruments and Methods-A*, 562, p. 838 (2006).
- T. Beller, B. Howard, R. LeCounte, and D. Beller, "High-Power Accelerator Target Design for the AFCI RACE Project," *Proceedings of the 2006 International High Level Radioactive Waste Management Conference*, Las Vegas, NV, pp. 1244-1246 (2006).
- C. Maidana, A. Hunt, D. Beller, and K. Folkman, "Design, Modeling and Simulations in the RACE Project: First Study for the Development of a Transport Line," *Nuclear Instruments and Methods-A*, 562, 2, pp. 892-895 (2006).
- D. Beller, "Update on the Reactor-Accelerator Coupling Experiments (RACE) Project," *Transactions of the American Nuclear Society*, 95, Washington, DC, pp. 943-944 (2006).
- D. Beller, E. Wachs, P. Newman, and S. Kerrick, "Racing to Win the Public Communications Competition," *Transactions of the American Nuclear Society*, 95, Washington, DC, pp. 961-962 (2006).
- J. Plaue, S. Goeur, J. Petchsaiprasert, M. Draye, J. Foos, and K. Czerwinski, Comparison of Uranyl Third-Phase Formation in 30 % TBP-Nitric Acid in Dodecane and HPT using UV-Visible Spectroscopy. *ACS Symposium Series 933, Separations for the Nuclear Fuel Cycle in the 21st Century*, Gregg Lumetta et al. editors, 119-134 (2006).
- J. Plaue, A. Gelis, and K. Czerwinski, "Actinide Third Phase Formation in 1.1 M TBP/Nitric Acid/Alkane Diluent Systems," *Sep. Sci. and Techn*, 41, 1-10 (2006).
- J. Plaue, A. Gelis, K. Czerwinski, P. Thiyagarajan, and R. Chiarizia, "Small-angle neutron scattering study of plutonium third phase formation in 30% TBP/HNO₃/alkane diluent systems," *Solv. Extr. Ion Exch.* 24(3), 283-298, (2006).
- J. Plaue, A. Gelis, and K. Czerwinski, "Plutonium third phase formation in the 30% TBP/nitric acid/hydrogenated polypropylene tetramer system," *Solv. Extr. Ion Exch.*, 24(3), 271-282 (2006).

Presentations:

- J. Gostic, K. Czerwinski, and J. Telford, "A New Approach to Chemistry," Attribution Sciences Panel Workshop, Las Vegas, NV, January 2006.
- J. Gostic, G.W.C. Silva, K. Holliday, T. Hartmann, J. Telford, and K. Czerwinski, "Radiochemistry Program at UNLV: Education and Research," Pacific Northwest National Laboratory, February 2006.
- A.E. Hechanova, "DOE-NE Materials Research Program at UNLV," University Consortium Meeting, Reno, NV, February 22, 2006.
- A.E. Hechanova, "AFCI Materials Research Program at UNLV," AFCI Materials Working Group Meeting, Santa Fe, NM, March 2, 2006.
- C. Bias, and K. Czerwinski, "Remote radiation detection by the interception of ultraviolet scintillation," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- G. Cerefice, "Optical techniques for improved materials accountability in the UREX+ process," paper presentation, American Chemical Society Student Meeting, Atlanta, GA, March 30, 2006.
- C.S. Gong, T.A. Sullens, and K. Czerwinski, "Actinide sorption onto Iron(III) minerals formed under repository conditions," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- R.C. Gostic, J.M. Gostic, N.A. Smith, T. Hartmann, and K. Czerwinski, "Application of sequential extractions to sorption of Pu," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- K.S. Holliday, T. Hartmann, and K. Czerwinski, "Zirconium-magnesium oxides as inert matrix fuels," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- L.M. Mullen, K. Czerwinski, and M. Polz, "Dissolution and speciation of uranium oxide by bioprecipitated manganese oxides," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- G.W.C. Silva, T. Hartmann, and K. Czerwinski, "Synthesis and characterization of GEN IV reactor fuels," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- N.A. Smith, G.S. Cerefice, and K. Czerwinski, "Optical techniques for improved materials accountability in the UREX+ process," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- T.A. Sullens, C.S. Gong, and K. Czerwinski, "Iron(II) sorption to mineral surfaces in uranyl and silicate rich media," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- A.D. Wright and K. Czerwinski, "Nitrate effects on uranium and plutonium extractions in the tributylphosphate-dodecane system," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- A.D. Wright, K.S. Holliday, G.W.C. Silva, C.S. Gong, T. Hartmann, K. Czerwinski, "Using radiochemistry to couple nuclear fuel development with separations and repository behavior for the advanced fuel cycle," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- C.B. Yeamans and K. Czerwinski, "Characterization of the ammonium uranium fluoride chemical system," 231st ACS National Meeting, Atlanta, GA, March 26-30 2006.
- D. Beller, "RACE Project Update," RACE-ECATS Planning Meeting, Texas A&M University, College Station, Texas, April 10, 2006.
- D. Beller, "RACE Reactor Options," RACE-ECATS Planning Meeting, Texas A&M University, College Station, Texas, April 10, 2006.
- T. Beller, R. LeCounte, B. Howard, and D. Beller, "UNLV High-Power Target Design, Fabrication, and Construction," presented by D. Beller at the Fourth Annual ADSS Experiments Workshop, Texas A&M University, College Station, TX, April 13, 2006.
- D. Beller, "UNLV Nuclear Science & Engineering," oral presentation, Academic Advisory Committee of the Western Nuclear Science Alliance, April 28, 2006.
- T. Beller, B. Howard, R. LeCounte, and D. Beller, "High-Power Accelerator Target Design for the AFCI RACE Project," poster presentation, 2006 International High Level Radioactive Waste Management Conference, Las Vegas, NV, May 2, 2006.
- T. Beller, B. Howard, and R. LeCounte, "High-Power Accelerator Target Design for the AFCI

- RACE Project," poster and demonstration for the UNLV senior engineering design competition, May 3, 2006.
- D. Beller, F. Harmon, E. Stankovskiy, T. Ward, and F. Goldner, "Reactor Accelerator Coupling Experiments (RACE) Project," poster presentation, International Conference on Research Reactors in the 21st Century (RR-XXI), Moscow, Russia, June 20-23, 2006.
- D. Beller, et al., "Combined Radiation Detection Methods for the AFCI MPAC Project," paper presentation, 47th Annual Meeting of the Institute for Nuclear Materials Management, Nashville, TN, July 20, 2006.
- K. Czerwinski, "Chemical Basis for the Novel Synthesis of Actinide Nitride," International Atomic Energy Agency, Vienna, Austria, August 2006.
- T. Beller, B. Howard, R. LeCounte, and D. Beller, "High Power Accelerator Target Design for the AFCI RACE Project," poster presentation, AFCI Semi-Annual Review Meeting, Santa Fe, NM. September 6-8, 2006.
- S. Elkouz, P. Houlihan, K. Czerwinski, and D.W. Hatchett, "Electrochemistry of Cerium: EDTA Complexation and pH Effects," poster presentation, AFCI Semi-Annual Review Meeting, Santa Fe, NM. September 6-8, 2006.
- A.D. Wright, C.S. Gong, and K.R. Czerwinski, "Nitrite Effects of Uranium and Plutonium Extractions," poster presentation, AFCI Semi-Annual Review Meeting, Santa Fe, NM. September 6-8, 2006.
- G.W.C. Silva, T. Hartmann, and K.R. Czerwinski, "Nitridization of Zr-U-Er-Oxides," poster presentation, AFCI Semi-Annual Review Meeting, Santa Fe, NM. September 6-8, 2006.
- A.E. Hechanova, "UNLV Transmutation Research Program Highlights," presentation, AFCI Semi-Annual Review Meeting, Santa Fe, NM, September 8, 2006.
- D. Beller, "The Need for Nuclear Power," in a symposium for federal judges, "The Environmental Consequences of Energy Use: Policies for Progress," Foundation for Research on the Environment and Economics, Big Sky, MT, September 13, 2006.
- D. Beller, "Atomic Time Machines: Back to the Nuclear Future," in a symposium for federal judges, "The Environmental Consequences of Energy Use: Policies for Progress," Foundation for Research on the Environment and Economics, Big Sky, MT, September 15, 2006.
- D. Beller, "The Need for Nuclear Power," Graduate Colloquium, Department of Nuclear Engineering, Purdue University, September 21, 2006.
- T. Beller, B. Howard, R. LeCounte, and D. Beller, "High-Power Accelerator Target Design for the AFCI RACE Project," poster presentation, UNLV College of Engineering Open House, September 2006.
- C.S. Gong, L. Wright, N. Smith, and K. Czerwinski, "Use of dyes for spectroscopic uranyl speciation determination," paper presentation, 232nd ACS Meeting, San Francisco, CA, September 2006.
- A. Wright, N. Smith, F. Poineau, and K. Czerwinski, "Nitrate effects on uranium and plutonium extractions in the tributylphosphate-dodecane system," 232nd ACS Meeting, San Francisco, CA, September 2006.
- M. Draye, A. Favre-Réguillon, N. Smith, A. Wright, T. Robinson, and K. Czerwinski, Trivalent actinide and lanthanide cation separation using cloud point extraction, 232nd ACS National Meeting, San Francisco, CA, September 2006
- A.P. Sattelberger, F. Poineau, K. Czerwinski, and S.D. Conradson, Quadruply-bonded technetium dimers, 232nd ACS National Meeting, San Francisco, CA, September 2006.
- D. Beller, "The Need for Nuclear Power," Graduate Colloquium, Department of Physics, Idaho State University, October 2, 2006.
- K. Holliday, "Characterization of zirconium-magnesium ceramics for inert matrix fuel," 2006 Inert Matrix Fuel - 11 Workshop, Park City, UT, October 10-12, 2006.

- A.E. Hechanova, "Efficiency Improvement and Cost Reduction of Solid Oxide Electrolysis Cells," presentation, DOE Nuclear Hydrogen Initiative, Semi-Annual Review Meeting, Germantown, MD, October 31, 2006.
- A.E. Hechanova, "UNLV Consortium Overview," presentation, DOE Nuclear Hydrogen Initiative, Semi-Annual Review Meeting, Germantown, MD, November 1, 2006.
- A.E. Hechanova, "High Temperature Heat Exchanger Project," presentation, DOE Nuclear Hydrogen Initiative, Semi-Annual Review Meeting, Germantown, MD, November 1, 2006.
- A.E. Hechanova, "Transmutation Technologies," presentation and invited panelist, ASME International Mechanical Engineering Congress and Exposition, Chicago, IL, November 7, 2006.
- D. Beller, "Racing to Win the Public Communications Competition," paper presentation, Winter Meeting of the American Nuclear Society, November 14, 2006, Albuquerque, NM.
- D. Beller, "Update on the Reactor-Accelerator Coupling Experiments (RACE) Project," presentation, Winter Meeting of the American Nuclear Society, November 16, 2006, Albuquerque, NM.
- D. Beller, "RACE Project Experiments," presentation, Winter Meeting of the American Nuclear Society, November 16, 2006, Albuquerque, NM.
- T. Beller and R. LeCounte, "Design of the High-Powered RACE Target," presentation, Winter Meeting of the American Nuclear Society, November 16, 2006, Albuquerque, NM.
- F. Poineau, A. Sattelberger, S.D. Conradson, K. Czerwinski, Synthesis and Characterization of Quadruple-Bonded Technetium Dimers, MRS Scientific Basis for Nuclear Waste Management XXX Boston, MA November-December 2006.
- F. Poineau, T. Hartmann, G. Jarvinen, and K. Czerwinski, "Synthesis and Characterization of Technetium-Zirconium Alloys Waste Forms for the UREX+1 Process," MRS Scientific Basis for Nuclear Waste Management XXX Boston, MA November-December 2006.

Service:

Professional:

- Meeting with and tour of facilities for Japanese Scientists from the Japan Science and Technology Agency, March 3, 2006.
- D. Beller, "Atomic Time Machines: Back to the Future of Nuclear Power," Graduate Colloquium, Department of Physics, Idaho State University, November 27, 2006.
- Hosted a Molten Salt Working Group meeting, November 30, 2006
- Hosted a Materials Meeting for the Nuclear Hydrogen Initiative, December 6-8, 2006.
- Collaboration meeting with faculty from the Institute for Nuclear Power Engineering, December 21-24, 2006.
- Hosted a seminar series on electromagnetic pumps.
- Members of the Advanced Fuel Cycle Initiative (AFCI) Fuels Working Group, Separations Working Group, and Systems Working Group.
- D. Beller, member, Public Information Committee of the ANS.
- D. Beller, member, American Nuclear Society President's Special Committee on Federal Investment in Nuclear Education.
- D. Beller, member, Board of Advisors for the Nuclear Engineering Department of Purdue University.
- D. Beller, member, Executive Committee of the Accelerator Applications Division of the ANS.

- D. Beller, organizer and chair of a technical session titled “Experiments in Support of Accelerator Applications” at the 2006 Winter Meeting of the American Nuclear Society in Albuquerque, NM, November 16, 2006.
- D. Beller, reviewed grant proposals for the DOE's Nuclear Engineering Education and Research (NEER) Program.
- D. Beller, reviewed technical papers for two archival engineering journals: Nuclear Technology and Nuclear Science and Engineering (both published by the American Nuclear Society).
- D. Beller, General Chair, Organizing Committee for the ANS conference “Eighth International Topical Meeting on Nuclear Applications and Utilization of Accelerators (AccApp'07),” Pocatello, Idaho, July 30-August 3, 2007.
- D. Beller, coordinated and attended nuclear public communications events at two premier motor racing events with Newman Wachs Racing, staff from the American Nuclear Society and nuclear industry sponsors, and students and members of ANS sections.
- D. Beller, worked with Susan Eisenhower, granddaughter of Pres. Eisenhower and former director of the Eisenhower Institute in Washington, DC, to organize two high-level dinner-discussions of nuclear energy issues hosted by actors Paul Newman and Joanne Woodward in their living room. Each discussion included about twenty top U.S. executives from industry, Wall Street, state and national government, academia, and environmental organizations.
- K. Czerwinski, member, Separations and Actinide Science Board of Directors, Idaho National Laboratory, July 2006-Present.
- K. Czerwinski, Committee member, Separations Panel, Office of Basic Energy Science, Advanced Nuclear Energy Systems July 2006-September 2006.
- K. Czerwinski, Editor of Radiochemistry, Central European Journal of Chemistry, April 2006-Present.
- K. Czerwinski, Committee member, National Research Council, Management of Certain Radioactive Waste Streams Stored in Tanks at Three Department of Energy Sites, March-March 2006.
- K. Czerwinski, member, Advisory Panel on Radioactive Waste Treatment, Archimedes Technologies, Jan 2005-August 2006.
- K. Czerwinski, Committee Member, International Atomic Energy Agency, Minor Actinide Inert Fuel Matrices, May 2004-Present.
- K. Czerwinski, Visiting Instructor on Actinide Chemistry, Department of Energy Radiochemistry Summer School, Brookhaven National Laboratory July 2006.
- A.E. Hechanova, “The Latest in Nuclear Waste Management,” invited seminar, University of Toledo, Toledo, OH on October 27, 2006.
- A.E. Hechanova, Chair, Accelerator Applications Division, American Nuclear Society.

Community:

- Staffed exhibits at the Pahrump Earth Day Festival, April 22, 2006.
- Staffed exhibits at the Pahrump Fall Festival, September 29 – October 1, 2006.
- D. Beller, Chair of the Nevada Section of the American Nuclear Society.
- D. Beller, Second Vice President and member of the Board of Management of the Eagle Alliance, and Chair of the Eagle Alliance Action Center of Nevada.
- K. Czerwinski, organized science club at Lamping Elementary, Henderson, NV
- A.E. Hechanova, presented an invited lecture entitled “Advanced Fuel Cycles and Spent Nuclear Fuel Reprocessing” to the Sun City Nuclear Science Club on March 14, 2006.

- A.E. Hechanova, participated as a panelist and also presented a lecture entitled “Advanced Nuclear Fuel Cycle” at the Membership Colloquium for the Sun City Summerlin Nuclear Science Club on May 5, 2006.
- A.E. Hechanova, Member, Nuclear Waste and Environmental Advisory Board, Town of Pahrump.
- A.E. Hechanova, Secretary, Nevada Section of the American Nuclear Society.
- J. Ma, reviewer for the Journal of Marine Science and Technology, September 22 – December 31, 2006.

UNLV:

- Organized and hosted several visits by DOE and NSTec managers with the NSTD, Health Physics Department, and Colleges of Sciences and Engineering.
- Supported developmental research projects on the Transmission Electron Microscope for academic departments.
- D. Beller, organized a UNLV recruiting exhibit at the Annual ANS Student Conference at Rensselaer Polytechnic Institute.
- D. Beller, presented a poster “High-Power Accelerator Target Design for the AFCI RACE Project” for the UNLV College of Engineering Freshman Visit, November 18, 2006.
- D. Beller, served as technical advisor to the winning Mechanical Engineering team in the College of Engineering senior design competition.
- D. Beller, organized a student exhibit on the HP RACE Target for UNLV Engineering freshman recruitment on November 18th for about 50 students and parents.
- D. Beller, UNLV representative to Western Nuclear Science Alliance (DOE INIE).
- D. Beller, hosted the Academic Advisory Committee meeting of the Western Nuclear Science Alliance, of which UNLV is now a member, and organized tours of the Nevada Test Site and the Yucca Mountain Project for participants.
- D. Beller, advisor, UNLV Student Section of the ANS.
- D. Beller, UNLV representative to Nuclear Engineering Department Heads Organization (NEDHO).
- D. Beller, coordinator, UNLV Materials and Nuclear Engineering M.S. program.
- G. Cerefice, served on the UNLV Radiation Safety Advisory Committee.
- K. Czerwinski, Director of UNLV Radiochemistry Ph.D. program.
- A.E. Hechanova, presented a guest lecture to the Radioactive Waste Management class entitled “Advanced Fuel Cycles and Spent Nuclear Fuel Reprocessing” on April 13, 2006.
- J. Ma, developed a graduate and senior undergraduate student course: MEG (495/695), Special Topics: Liquid Metal Coolant Technology (M495/695).
- J. Ma, lecturer, independent study course: Modern Control System.
- T. O’Dou, taught a 2 hour session at the Hazmat Explo, November 16, 2006, on "Radioactive Material Laboratory Safety, Accident Prevention, and Emergency Response at the Harry Reid Center for Environmental Studies at the University of Nevada Las Vegas."
- Thesis committee members for graduating students:
 - Srinivas Chanda, M.S. Mechanical Engineering
 - Venkat Kondur, M.S. Mechanical Engineering
 - Joydeep Pal, M.S. Mechanical Engineering
 - Vinay Virupaksha, M.S. Mechanical Engineering
 - Jagadesh Yelavarthi, M.S. Mechanical Engineering