

LONGENECKER and ASSOCIATES

Anthony Edward Hechanova

DETAILED EXPERIENCE

Nov. 1995-Present:

University of Nevada, Las Vegas, Harry Reid Center for Environmental Studies

Associate Research Professor, July 2005-present.

Research Scientist, Nuclear Engineering and Health Physics, Nov. 1995-June 2005.

Director, HRC Nuclear Science and Technology Division, May 2000-present.

Director, UNLV Transmutation Research Program, March 2001-present.

Leader, International Youth Nuclear Congress (IYNC) Waste Management Research Project, July 2001-present.

Non-teaching faculty: Health Physics Department, Mechanical Engineering Department.

Instructor: Health Physics Seminar (Fall 1999 to Fall 2000); and Continuing Education courses The Legacy of Nuclear Weapons Testing in Nevada (Fall 1996 to Spring 1997) and The Nevada Test Site: Past, Present, and Future (Spring 1996).

Sept. 1988-Feb. 1995:

Massachusetts Institute of Technology, Cambridge, Massachusetts

Research Assistant, Department of Nuclear Engineering and Plasma Fusion Center. Research in the field of Fusion Technology. Teaching Assistant for courses Structural Mechanics in Nuclear Power Technology (Fall 1988 and Fall 1990) and Plasma Laboratory (Spring 1989).

June-Aug. 1989:

French Atomic Energy Commission, Grenoble, France, Center for Nuclear Research

American Nuclear Society/Argonne National Lab Student Exchange Program. Research in heat transfer modeling of saturated steam condensing on a subcooled liquid for use in the CATHARE code with validation from the COSI Test Facility high pressure safety injection experiments.

Sept. 1986-June 1988:

University of California, Davis, California

Teaching Assistant for the following courses: (1) Experimental Methods in Heat Transfer and Fluid Mechanics Measurements (Mechanical Engineering); (2) Thermodynamics Laboratory (Mechanical Engineering); and (3) Jet Propulsion Laboratory (Aeronautical Sciences Dept).

EDUCATION

- Ph.D. 1995 (Nuclear Engineering) Massachusetts Institute of Technology
- M.S. 1990 (Nuclear Engineering) Massachusetts Institute of Technology
- M.S. 1988 (Mechanical Engineering) University of California-Davis
- B.S. 1986 (Mechanical Engineering) University of California-Davis Magna Cum Laude

PROFESSIONAL ASSOCIATIONS

- American Nuclear Society
- American Society of Mechanical Engineers
- Health Physics Society

PROFESSIONAL COMMITTEES

- Member, Nuclear Waste and Environmental Advisory Board, Town of Pahrump, Nye County, Nevada, December 1999 to present.
- Chair, Accelerator Applications Division, American Nuclear Society, June 2006 to June 2007.
- Vice Chair, Chair-elect, Accelerator Applications Division, American Nuclear Society, June 2005 to June 2006.
- Secretary, Accelerator Applications Division, American Nuclear Society, June 2004 to June 2005.
- Executive Committee Member, Accelerator Applications Division, American Nuclear Society, June 2003 to June 2004.
- Vice Chair, Nevada Section, American Nuclear Society, July 2007 to present.
- Secretary, Nevada Section, American Nuclear Society, July 2006 to July 2007.
- Executive Committee Member, Nevada Section, American Nuclear Society, June 2000 to present.
- Member, Systems Working Group, Advanced Fuel Cycle Initiative, DOE Office of Nuclear Energy, Science & Technology, January 2005 to present.
- Member, Board of Directors, Nevada Environmental Research and Monitoring Institute, February 2006 to present.

SELECTED CONFERENCE PAPERS AND PUBLICATIONS

Ponyavin, V., Y. Chen, A.E. Hechanova, and M. Wilson, "Modeling and Parametric Study of a Compact Ceramic High Temperature Heat Exchanger and Chemical Decomposer for Hydrogen Production," Sixth International Conference on Enhanced, Compact and Ultra-Compact Heat Exchangers: Science, Engineering and Technology, Potsdam, Germany (draft paper submitted), September 16-21, 2007.

Ponyavin, V., Y. Chen, A.E. Hechanova, and M. Wilson, "Fluid/Thermal Analysis of Sulfuric Acid Decomposer for Hydrogen Production," ASME-JSME Thermal Engineering Conference and Summer Heat Transfer Conference, July 8-12, 2007, Vancouver, BC, Canada.

Kuchi, G., V. Ponyavin, Y. Chen, A.E. Hechanova, and S. Sherman, "Numerical Modeling of High Temperature Shell and Tube Heat Exchanger and Chemical Decomposer with Porous Media," Porous Media and its Applications in Science, Engineering and Industry Conference, June 17-21, 2007 in Kauai, Hawaii.

Nagarajan, V., V. Ponyavin, Y. Chen, A.E. Hechanova, M. Vernon, and P. Pickard, "Numerical Study of Sulfur Trioxide Decomposition in Bayonet Type Heat Exchanger and Chemical Decomposer with Porous Media Zone," Porous Media and its Applications in Science, Engineering and Industry Conference, June 17-21, 2007 in Kauai, Hawaii.

Subramanian, S., V. Ponyavin, C.R. DeLosier, Y. Chen, and A.E. Hechanova, "Design Considerations for Compact Ceramic Offset Strip-Fin High Temperature Heat Exchangers," *International Journal of Heat Exchangers*, special supplemental issue on Advances in Compact Heat Exchangers, B. Sundén and R.H. Shah editors, pp 59-74, 2007.

Ponyavin, V., 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.

Ponyavin, V., 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," IMECE2006, ASME International Mechanical Engineering Congress, Chicago, IL, November 4-10, 2006.

Muramalla, K.K., Y. Chen, and A.E. Hechanova, "Simulation and Optimization of Homogeneous Decomposition of Sulfur Trioxide Gas on a Catalytic Surface," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition 2005*, Orlando, Florida, November 2005.

Ponyavin, V., S. Subramanian, C.R. DeLosier, Y.T. Chen, A.E. Hechanova and P.F. Peterson, "Stress Analysis of a High Temperature Heat Exchanger Used in an Advanced Nuclear Reactor," *Proceedings of the ASME International Mechanical Engineering Congress and Exposition 2005*, Orlando, Florida, November 2005.

Subramanian, S., V. Ponyavin, C.R. DeLosier, Y. Chen, and A.E. Hechanova, "Design Considerations for Compact Ceramic Offset Strip-Fin High Temperature Heat Exchangers," *Proceedings*, Fifth International Conference on Enhanced, Compact and Ultra-Compact Heat Exchangers, Whistler, BC, Canada, September 11-16, 2005.

Hechanova, A.E. "Waste Management Research Project," *Proceedings*, International Youth Nuclear Congress, Ontario, Canada, May 9-14, 2004.

Hechanova, A.E., "Public Involvement in Nevada: The Role of the University," *Proceedings of the 9th International Conference on Radioactive Waste Management and Environmental Remediation*, Oxford, England, Sept. 21-25, 2003.

Hechanova, A.E., B.T. Mattingly, and D. Gitnacht "An Analysis of the Intent of Environmental Standards in the U.S. that Apply to Waste Disposed at the Nevada Test Site," *IYNC 2000 Proceedings*, International Youth Nuclear Congress, Bratislava, Slovakia, April 9-14, 2000.

Crowe, B.M., A. Hechanova, R. Jacobson, C. Voss, R. Waters, M. Sully, and D. Levitt, "The Performance Assessment Impacts of Disposal of High-Moisture, Low-Level Radioactive Waste at the Nevada Test Site," *Proceedings*, Waste Management '99 Symposia, Tucson, Arizona, February 28 - March 4, 1999.

Hechanova, A.E., B.T. Mattingly, and P.S. Morris, "A Stakeholder-Based Risk Characterization of Operating Radioactive Waste Management Sites at the Nevada Test Site," *Proceedings*, International Conference on Probabilistic Safety Assessment and Management (PSAM4), New York, New York, September, 1998.

Hechanova, A.E., and P.S. Morris, "Plutonium-contaminated Soil Remediation in Nevada," *Proceedings*, Youth and the Plutonium Challenge Forum, Obninsk, Russia, July, 1998.

Hechanova, A.E., M.S. Kazimi, and J.E. Meyer, "A Framework for Critical Heat Flux Prediction in High Heat Flux, High Subcooling Components," *Proceedings of the ASME Heat Transfer Division*, 1995 International Mechanical Engineering Congress and Exposition, San Francisco, California, November 12-17, HTD-Vol. 317-1, pp. 127-132, 1995.

Hechanova, A.E., and M.S. Kazimi, "Thermo-Mechanical Performance of Beryllium-Coated Copper Divertors," Tenth Topical Meeting on the Technology of Fusion Energy, Boston, Massachusetts, June 7-11, 1992. *Fusion Technology*, Vol. 21, pp. 1880-1886, May, 1992.

Baughn, J.W., A.E. Hechanova, and X. Yan, "An Experimental Study of Entrainment Effects on Heat Transfer From a Flat Surface to a Heated Circular Impinging Jet," *Journal of Heat Transfer*, Vol. 113, pp. 1023-1025, November, 1991.

CURRENT RESEARCH PROJECTS

Program Director, UNLV Transmutation Research Program. The program mission is to establish a world-class program at UNLV for transmutation research and education through faculty-supervised graduate student projects. The program has built core competencies and facilities in the area of radiochemistry and nuclear engineering and is supported under the auspices of the U.S. Department of Energy, Office of Nuclear Energy, Advanced Fuel Cycle Initiative. FY01-FY07 budget: \$26,878,000.

Project Manager and Research Professor, High Temperature Heat Exchanger Project, UNLV Research Foundation. The purpose of this project is to assist the national program in developing heat exchanger components for the U.S. Department of Energy, Office of Nuclear Energy, Science & Technology, Nuclear Hydrogen Initiative. FY03-FY07 budget: \$8,560,000.