Howard Lewis Hall, Ph.D.

Business Address:

Department of Nuclear Engineering
315 Pasqua Engineering Building
University of Tennessee
Knoxville, TN 37996-2300

Educational History:

Ph. D. in Nuclear Chemistry
University of California, Berkeley, Ca.
8/85 -- 10/89
Thesis: *Delayed-Fission Properties of Neutron-Deficient Americium Nuclei* (D. C. Hoffman)

B. S. in Chemistry
College of Charleston, Charleston, S. C.
8/81 -- 5/85

Selected Honors:

Department of Homeland Security/Science & Technology Undersecretary's Award for Science (2005)
Sigma Xi (1990-)
National Science Foundation Graduate Fellow (1985-1988)
The Bishop Robert Smith Award (College of Charleston Valedictory Award, 1985)

Professional Organizations:

American Chemical Society
American Institute of Chemists

Security Clearances:

Information available to authorized personnel upon request.

Critical Qualification Areas:

Scientific Expertise

- Ph.D. in Nuclear and Radiochemistry, strong publication record in the peer-reviewed literature, recognized as a radiological/nuclear subject matter expert. Well-established credibility with Washington sponsors in the area of Radiological and Nuclear Countermeasures. Biological Science experience includes establishment of the BioSecurity and Nanoscience Laboratory, a multi-directorate center serving as an incubator for advances relevant to Biological Countermeasures as well as health-related developments. As part of the DHS/S&T CounterMeasures Test Beds program, shared in the receipt of the 2005 DHS Undersecretary's Award for Science for effectively integrating scientific capabilities with operational end-users in the Homeland Security counter-WMD mission space.

Program/Organization Leadership

- Successfully managed activities ranging from small groups to division-sized activities, including multi-lab and multi-agency teams. Widely recognized as a leader and manager who can balance working "within the system" with a high level of accomplishment, the ability to build strategic coalitions and relationships, and appropriate risk-taking and entrepreneurship to advance national security objectives. Significant personnel management experience, including recruiting, performance management, salary management, and corrective actions.

Strategic Planning and Execution

- Development and execution of strategic realignment of LLNL capabilities, transition of internal scientific services from duplicative and inefficient operations to nimble, appropriately sized set of core competencies that are self-sustaining. Advised senior DHS program management on strategic restructuring of national program area. Collaborating with multiple stakeholders in growing LLNL's radiological and nuclear mission spaces, especially in areas of Domestic Security and Defense. Effective succession planning for critical functions. Demonstrated track record of identifying and hiring high-impact employees.

Relationship Management

- Developed and maintain successful relations with multiple stakeholders (federal, national labs, commercial, and state/local entities) in the course of the LLNL work. Leads and influences numerous and diverse groups of stakeholders, ranging from focused programmatic tasks to consensus policy development activities. Renormalized dysfunctional relationships with critical partners, and developing/expanding strategic partnerships where needed.

Operations

- Successfully managed operations of the LLNL Chemical Biology and Nuclear Science Division and its hazard-ranked facilities. Included requirements development, infrastructure support, work authorization and oversight, safety and security systems, facility and laboratory construction, and occurrence management. Served in leadership roles in field deployment activities ranging from anthrax investigations to radiological/nuclear protective measures. Currently managing LLNL work that has national-level operational support tasking and numerous high-consequence activities.

Financial Management

- Successful management of multiple direct and indirect funding sources, including programmatic (WFO/Federal, DOE, WFO/Nonfederal) funds, recharge cost centers, capital investments, and overhead functions. Experience with multi-million dollar subcontracts. Demonstrated ability to transition groups from subsidized operations to self-sustaining capabilities.

Program Development

- Successfully led the growth of the LLNL DHS CounterMeasures Test Beds (CMTB) efforts from $1M per year at FY02 inception to approximately $20M per year in FY06. Successfully assisted the DHS Program Executive in the growth of the overall DHS CMTB program from $7M annually to approximately $60M annually. Increased LLNL market share within CMTB program from approximately 14% to approximately 40% of national program. Re-established sponsor satisfaction with the Nuclear Assessment Program, achieving a clean "report card" in four months.

Personnel Development and Management

- Supervised personnel in the LLNL performance management system since 1991. Experience with hiring, career development, ranking, salary actions, corrective actions, administrative appeals, and terminations/separations throughout the course of LLNL experience. Have taken groups through times of major expansion, reorganization (including merger of two major divisions and dissolution of one directorate), and downsizing. Recognized as a fair and effective personnel manager, trusted by others. Able to work with challenging personalities within confines of policies and procedures.

Employment History:

Professor and Governor's Chair, 5/09 – Present
Department of Nuclear Engineering
University of Tennessee
Duties: Teaching, research and service as a senior faculty member in the Nuclear Engineering Department. Position includes a joint appointment with the Global Nuclear Security Technology Division at Oak Ridge National Laboratory.

Program Leader, Radiological Detection and Response Program, 4/08 – 5/09
Global Security Principal Directorate
Lawrence Livermore National Laboratory
Duties: Lead LLNL activities that support U.S. Government missions in developing new radiological and nuclear countermeasures technology (including new detectors as well as new methods of rendering safe nuclear threats), supporting national responses to illicit or emergent nuclear incidents.

Division Leader for Radiological and Nuclear Countermeasures Division, 9/07 – 4/08
Global Security Principal Directorate
Lawrence Livermore National Laboratory
Duties: Oversees LLNL activities that support U.S. Government missions in developing new countermeasure technology, assessing threats to national security in the nuclear mission space, supporting national responses to illicit or emergent nuclear incidents, providing technical support to operational counter-RN assets of the US Government, and conducting scientific analysis of nuclear materials and other potentially criminal evidence for nuclear counter-terrorism applications.

Program Leader for Nuclear Assessment and Forensics Program, 12/06 – 9/07
Radiological and Nuclear Countermeasures Division (RN Division)
Lawrence Livermore National Laboratory
Duties: Support U.S. Government missions in assessing nuclear threats, providing responses to illicit nuclear trafficking incidents, provide technical support to operational radiation sensor installations, and conducting scientific analysis of nuclear materials and other potentially criminal evidence for nuclear counter-terrorism applications.

Program Leader for Countermeasures Testing and Evaluation, 4/06 – 12/06

Infrastructure and Force Protection Division (IP Division)
Associate Program Leader for Homeland Security Testing and Evaluation, 12/02 – 4/06
Proliferation and Terrorism Prevention Program (P Division)
Lawrence Livermore National Laboratory
Duties: Responsible for managing LLNL's field testing and evaluation activities supporting DHS/S&T's technology development programs, support to the DHS/S&T Standards Portfolio, and LLNL training activities for the USCG. Project lead for $35M national Air Cargo Explosives Detection Pilot Program, a joint effort between DHS/S&T and the Transportation Security Administration. Leading efforts supporting DHS programs in aviation safety and security, nuclear threat detection, security of maritime commerce, and specialized technology support to DHS operational entities (such as the United States Secret Service). Responsible for managing LLNL's activities within DHS's CounterMeasures Test Beds Program. In addition to LLNL assignment, also detailed to DHS/HQ to support the CMTB Program Executive.

Associate Division Leader for Nuclear Science, 4/03 – 12/05
Chemical Biology and Nuclear Sciences Division, Chemistry and Materials Science Directorate
Lawrence Livermore National Laboratory
Duties: Responsible for the Division's Nuclear Science activities, which support the LLNL's major programs in defense, nonproliferation, homeland security, energy, and environment. Oversee Program Element Leaders and Scientific Capability Leaders in the Nuclear Science arena. Primary focus is to create stronger links between the Division's capabilities and sponsor needs, working with the Lab's principal programs and external agencies where appropriate.

Deputy Division Leader for Operations, 12/98 – 4/03
Analytical & Nuclear Chemistry Division, Chemistry and Materials Science Directorate
Lawrence Livermore National Laboratory
Duties: Responsible for oversight and management of ANCD operations (a division with approximately 140 scientists and multiple hazard-ranked facilities), performing senior management functions, developing/implementing divisional and departmental strategic plans, overseeing operations, authorizing work, and managing workforce issues.

Division Leader, 9/98 – 12/98
Deputy Division Leader, 1/98 – 9/98
Section Leader, C&MS Environmental Services Laboratory Operations Section, 4/95 – 1/98
Analytical Sciences Division, Chemistry and Materials Science Directorate
Lawrence Livermore National Laboratory
Duties: Develop strategic goals for section; pursue new opportunities through program development (proposals, collaborations, etc.). Assist the Division Leader in managing ASD operations, participating in C&MS senior management functions, and developing/implementing divisional and departmental strategic plans, overseeing operations and authorizing work, and managing workforce issues. Additional assignments include serving as the ASD liaison for Defense and Nuclear Technology support and part of the Directorate-wide Materials Computation, Analysis, and Processing management structure. Analytical chemistry representative on the C&MS Chemical Warfare Nonproliferation Study Group. As a Section Leader, responsible for directing work of approximately twenty-five scientists and technicians who perform chemical and radiochemical analysis of environmental and hazardous waste samples for monitoring and regulatory purposes. Developed and implemented field analytical capability for support of decontamination and demolition activities.

Section Leader, Radiation Analytical Sciences, 11/91 -- 4/95
Nuclear Chemistry Division and Environmental Monitoring and Analysis Division
Lawrence Livermore National Laboratory

Duties: Directing work of approximately twenty-one scientists and technicians. Work involves two aspects: Analyzing potentially radioactive samples and hazardous waste by gross α/β, tritium, and γ spectroscopy for compliance verification prior to ultimate disposal; and ultra-low level analysis of environmental samples (such as surface water, rain water, air samples, soil, milk, honey, wine, and sediment) for tritium, uranium, plutonium, and ^{137}Cs (a fission product stand-in) to quantitate the impact of LLNL on the environment.

Visiting Lecturer, 1/92 -- 5/94
Department of Chemistry
University of California, Berkeley
Duties: Professor for the Nuclear Chemistry class. Topics include radiation safety, fundamentals of radiochemistry, detection of radiation, nuclear spectroscopy, and radiochemical separations.

Chemist, 9/91 -- 11/91
Chemistry and Materials Science Department
Lawrence Livermore National Laboratory
Duties: Performed x-ray fluorescence analysis of a variety of materials. Responsibilities included sample analysis, methods development, and technical consulting with clients. Notable developments included sub microgram quantitation of metal films for laser fusion experiments, development of CW-protective clothing performance testing.

Post-Doctoral Research Staff Member, 10/89 -- 9/91
Lawrence Livermore National Laboratory
Duties: Performed solution chemical studies in support of the Yucca Mountain Project. Studies included solution thermodynamics, laser spectroscopy, and nuclear counting. Performed environmental research at the Nevada Test Site to study the effect of humic and fulvic acids in deep groundwater relevant to radionuclide migration.

Peer-Reviewed Publications:

D. P. Fergenson et al., *Reagentless Detection and Classification of Individual Bioaerosol Particles in Seconds*, **Analytical Chemistry 76(2)**, 373-378 (2004)

B. Bandong et al., *Validation of a gamma-spectrometric method for the Measurement of Ra in Environmental Media Relevant to the Offshore Oil and Gas Industry,* **Journal of Radioanalytical and Nuclear Chemistry, 264 (2),** 429-435 (2005)**.**

S. A. Kreek, H. L. Hall, K. E. Gregorich, R. A. Henderson, et al., *Electron-Capture Delayed Fission Properties Of ^{228}Np,* **Physical Review C 50,** 2288-2296 (1994).

S. A. Kreek, H. L. Hall, K. E. Gregorich, R. A. Henderson, et al., *Electron-Capture Delayed Fission Properties Of The New Isotope ^{238}Bk,* **Physical Review C 49,** 1859-1866 (1994).

H. L. Hall and D. C. Hoffman, *Delayed Fission,* an invited review appearing in **Annual Reviews of Nuclear and Particle Science 42,** 147-175 (1992).

S. A. Kreek, M. J. Nurmia, B. Kadkhodayan, K. E. Gregorich, D. M. Lee, D. C. Hoffman, H. L. Hall, C. E. A. Palmer, P. A. Baisden, and R. A. Henderson, *An Automated, On-Line Rapid Chemistry System*, **Nuclear Instruments and Methods in Physics Research A317**, 251 (1992).

A. Turler, H. R. von Gunten, J. D. Leyba, D. C. Hoffman, D. M. Lee, K. E. Gregorich, D. A. Bennett, R. M. Chasteler, C. M. Gannett, H. L. Hall, R. A. Henderson, and M. J. Nurmia, *Actinide Production from the Interactions of ^{40}Ca and ^{44}Ca with ^{248}Cm and a Comparison with the ^{48}Ca+^{248}Cm System*, **Physical Review C 46**, 1364 (1992).

K. E. Gregorich, H. L. Hall, R. A. Henderson, J. D. Leyba, K. R. Czerwinski, S. A. Kreek, B. A. Kadkhodayan, M. J. Nurmia, D. M. Lee, and D. C. Hoffman, *Fission Branch in ^{259}Lr and Confirmation of ^{258}Lr and ^{259}Lr Mass Assignments,* **Physical Review C 45,** 1058 (1991).

B. Kadkhodayan, R. A. Henderson, H. L. Hall, J. D. Leyba, K. R. Czerwinski, S. A. Kreek, N. J. Hannink, K. E. Gregorich, D. M. Lee, M. J. Nurmia, and D. C. Hoffman, *Identification of ^{253}Md*, **Radiochimica Acta 56,** 1 (1991).

B. Singh, H. W. Taylor, E. Browne, H. L. Hall, E. B. Norman, R. M. Larimer, A. O. Macchiavelli, K. T. Lesko, and B. Sur, *Study of γ Radiation from ^{100}Pd Decay*, **Zeitschrift Fur Physik A 341,** 249 (1992).

H. L. Hall, *Radiochemical Extractions of Palladium by Dimethylglyoxime*, **Journal of Radioanalytical and Nuclear Chemistry 158,** 211 (1992).

H. L. Hall, K. E. Gregorich, R. A. Henderson, C. M. Gannett, R. B. Chadwick, J. D. Leyba, K. R. Czerwinski, B. Kadkhodayan, S. A. Kreek, N. J. Hannink, D. M. Lee, M. J. Nurmia, D. C. Hoffman, C. E. A. Palmer, and P. A. Baisden, *Electron-Capture-Delayed-Fission Properties of ^{232}Am,* **Physical Review C 42**, 1480 (1990).

J. D. Leyba, R. A. Henderson, H. L. Hall, C. M. Gannett, R. B. Chadwick, K. R. Czerwinski, B. A. Kadkhodayan, S. A. Kreek, G. R. Haynes, K. E. Gregorich, D. M. Lee, M. J. Nurmia, and D. C. Hoffman, *Excitation Functions for Actinides Produced in the Interactions of ^{31}P with ^{248}Cm,* **Physical Review C 44,** 1850 (1991).

J. V. Kratz, H. P. Zimmermann, U. W. Scherer, M. Schadel, W. Bruchle, K. E. Gregorich, C. M. Gannett, H. L. Hall, R. A. Henderson, D. M. Lee, J. D. Leyba, M. J. Nurmia, D. C. Hoffman, H. Gaggeler, D. Jost, U. Baltensperger, Ya Nai-Qi, A. Turler, and Ch. Lienert, *Chemical Properties of Element 105 in Aqueous Solution: Halide Complex Formation and Anion Exchange into Triisooctyl Amine,* **Radiochimica Acta 48**, 121 (1989)

J. D. Leyba, R. A. Henderson, H. L. Hall, C. M. Gannett, R. B. Chadwick, K. R. Czerwinski, B. A. Kadkhodayan, S. A. Kreek, G. R. Haynes, K. E. Gregorich, D. M. Lee, M. J. Nurmia, and D. C. Hoffman, *Heavy Actinide Production from the Interactions of ^{40}Ar with ^{248}Cm and a Comparison with the ^{44}Ca-^{248}Cm System,* **Physical Review C 41,** 2092 (1990).

H. L. Hall and D. C. Hoffman, *Low-Energy Nuclear Fission and Our Understanding of the Nucleus,* an invited review appearing in the **Journal of Radioanalytical and Nuclear Chemistry 142**, 53 (1990).

D. C. Hoffman, D. M. Lee, K. E. Gregorich, M. J. Nurmia, R. B. Chadwick, K. B. Chen, K. R. Czerwinski, C. M. Gannett, H. L. Hall, R. A. Henderson, B. Kadkhodayan, S. A. Kreek, and J. D. Leyba, *Spontaneous Fission Properties of 2.9-s ^{256}No,* **Physical Review C 41,** 631 (1990).

Y. Hatsukawa, T. Ohtsuki, K. Sueki, H. Nakahara, I. Kohno, M. Magara, N. Shinohara, H. L. Hall, R. A. Henderson, C. M. Gannett, J. D. Leyba, R. B. Chadwick, K. E. Gregorich, D. Lee, M. J. Nurmia, and D. C. Hoffman, *Alpha Decay Properties of Light Einsteinium Isotopes*, **Nuclear Physics A500**, 90 (1989).

H. L. Hall, *Delayed-Fission Properties of Neutron-Deficient Americium Nuclei*, **Ph. D. Thesis** (University of California, 1989).

H. L. Hall and D. C. Hoffman, *Delayed Fission of Light Americium Isotopes*, **Exotic Nuclear Spectroscopy,** W. C. McHarris, ed., (Plenum, New York, 1990) Chapter 37.

R. A. Henderson, K. R. Czerwinski, H. L. Hall, K. T. Lesko, E. B. Norman, B. Sur, and D. C. Hoffman, *More Searches for Cold Fusion*, **Journal of Fusion Energy 9,** 475 (1990).

H. L. Hall, K. E. Gregorich, R. A. Henderson, C. M. Gannett, R. B. Chadwick, J. D. Leyba, K. R. Czerwinski, B. Kadkhodayan, S. A. Kreek, D. M. Lee, M. J. Nurmia, D. C. Hoffman, C. E. A. Palmer, and P. A. Baisden, *Electron-Capture-Delayed Fission Properties of ^{234}Am,* **Physical Review C 41,** 618 (1990).

H. L. Hall, K. E. Gregorich, R. A. Henderson, C. M. Gannett, R. B. Chadwick, J. D. Leyba, K. R. Czerwinski, B. Kadkhodayan, S. A. Kreek, D. M. Lee, M. J. Nurmia, and D. C. Hoffman, *Direct Proof of*

Electron-Capture-Delayed-Fission Process, **Physical Review Letters 63,** 2548 (1989).

E. Browne, B. Sur, E. B. Norman, H. L. Hall, R. A. Henderson, K. T. Lesko, R. M. Larimer, and D. C. Hoffman, *Nuclear Penetration Effects in ^{233}U,* **Nuclear Physics A501**, 477 (1989).

H. L. Hall, M. J. Nurmia, and D. C. Hoffman, *A Multiple Target Gas-Jet System for Light-Ion Bombardments of Heavy Targets,* **Nuclear Instruments and Methods in Physics Research A276,** 649 (1989).

H. L. Hall, K. E. Gregorich, R. A. Henderson, D. M. Lee, D. C. Hoffman, M. E. Bunker, M. M. Fowler, P. Lysaght, J. W. Starner, and J. B. Wilhelmy, *β-Delayed Fission from ^{256m}Es and the Level Scheme of ^{256}Fm*, **Physical Review C 39,** 1866 (1989).

K. E. Gregorich, R. A. Henderson, D. M. Lee, M. J. Nurmia, R. M. Chasteler, H. L. Hall, D. A. Bennett, C. M. Gannett, R. B. Chadwick, J. D. Leyba, D. C. Hoffman, and G. Hermann, *Aqueous Chemistry of Element 105*, **Radiochimica Acta 43**, 223 (1988).

D. C. Hoffman, R. A. Henderson, K. E. Gregorich, D. A. Bennett, R. M. Chasteler, C. M. Gannett, H. L. Hall, D. M. Lee, M. J. Nurmia, S. Y. Cai, R. Agarwal, A. W. Charlop, Y. Y. Chu, and R. J. Silva, *Atom-at-a-Time Radiochemical Separations of the Heaviest Elements: Lawrencium Chemistry,* **Journal of Radioanalytical and Nuclear Chemistry 124,** 135 (1988).

W. Bruchle, M. Schadel, U. W. Scherer, J. V. Kratz, K. E. Gregorich, D. Lee, M. Nurmia, R. Chasteler, H. L. Hall, R. Henderson, and D. C. Hoffman, *The Hydration Enthalpies of Md^{3+} and Lr^{3+}*, **Inorganica Chimica Acta 146**, 267 (1988).

A. M. Huff, H. L. Hall, M. J. Smith, S. A. O'Grady, F. C. Waters, R. W. Fengl, J. A. Welsh, and C. F. Beam, *The Preparation of Phenacylpyrazoles, Acylpyrazoles, Imidazolylisoxazoles, and Imidazolylpyrazoles from C(α)-Dianions of Oximes, Phenylhydrazones, and Acylhydrazones.* **Journal of Heterocyclic Chemistry 22(2)**, 501 (1985).

C. F. Beam, H. L. Hall, A. M. Huff, R. C. Tummons, and S. A. O'Grady, *The Preparation and Reactions of C(α)N-dilithiocarboalkozyhydrazones*, **Journal of Heterocyclic Chemistry 21(6)**, 1897 (1984).