

Verification and Validation (V&V) of Computational Models

Instructors:

François Hemez, Los Alamos Dynamics, L.L.C.

François Hemez has been technical staff member at Los Alamos National Laboratory since 1997. François graduated from Ecole Centrale (Paris, France) in 1989 and earned a Ph.D. from the University of Colorado in 1993 (aerospace engineering). At Los Alamos, François spent seven years in the Engineering Division, one of which as leader of the Validation Methods team. In 2005, he joined the X-Division for nuclear weapons design. He managed the verification project and the predictive capability assessment project of the Advanced Scientific Computing program. His research interests revolve around the development of methods for Verification and Validation (V&V), uncertainty quantification and decision-making, and their applications to material modeling, engineering, energy and weapon physics projects. François is also adjunct professor at the University of California San Diego (UCSD). He developed and taught the first-ever, graduate-level course offered in a U.S. University in the discipline of V&V (UCSD, 2006). François received the Junior Research Award of the European Association of Structural Dynamics in 2005; four U.S. Department of Energy Defense Program Awards of Excellence for applying V&V to programmatic work at Los Alamos (2006, 2010, 2012); and the D.J. DeMichele Award of the Society for Experimental Mechanics in 2010. Since 1994, he has authored 360+ reports and technical publications, including 39 peer-reviewed journal articles, and given 120+ invited lectures and short-courses.



Charles Farrar, Los Alamos Dynamics, L.L.C.

Chuck Farrar is the President of Los Alamos Dynamics. He has 30 years of experience as a technical staff member, project leader and team leader at Los Alamos National Laboratory (LANL). He is currently the director of The Engineering Institute at LANL. While at Los Alamos, he earned a Ph.D. in civil engineering from the University of New Mexico in 1988. The first ten years of his career at LANL focused on performing experimental and analytical structural dynamics studies for a wide variety of systems including nuclear power plant structures subject to seismic loading and weapons components subject to various portions of their stockpile-to-target loading environments. Chuck Farrar's research interests focus on developing integrated hardware and software solutions to Structural Health Monitoring (SHM) problems and damage prognosis. The results of this research have been documented in over 300 refereed journal articles, book chapters, conference papers, Los Alamos reports, numerous keynote lectures at international conferences, and most recently in a book co-authored with Professor Keith Worden and entitled *Structural Health Monitoring: A Machine Learning Perspective*. In 2000, he founded the Los Alamos Dynamics Summer School. He has received the Los Alamos Fellows Prize for Technical Leadership and the Lifetime Achievement Award in SHM. Chuck Farrar is also adjunct professor at the University of California San Diego where he teaches a graduate-level course on SHM.



A three-day short-course organized jointly by the 7th European Workshop on Structural Health Monitoring (EWSHM) and Los Alamos Dynamics, L.L.C.

Additional professional activities include an associated editor position for *Earthquake Engineering and Structural Dynamics* and the development of short-courses on SHM and model validation that have been offered numerous times to industry and government agencies in Asia, Australia, Europe and the United States. In January of 2007 Chuck Farrar was elected to Fellow of the American Society of Mechanical Engineers and in 2012 he was elected as a Fellow of Los Alamos National Laboratory.