HFICD

HUMAN FACTORS, INSTRUMENTATION & CONTROLS DIVISION

SPRING 2013 NEWSLETTER

http://hficd.ans.org

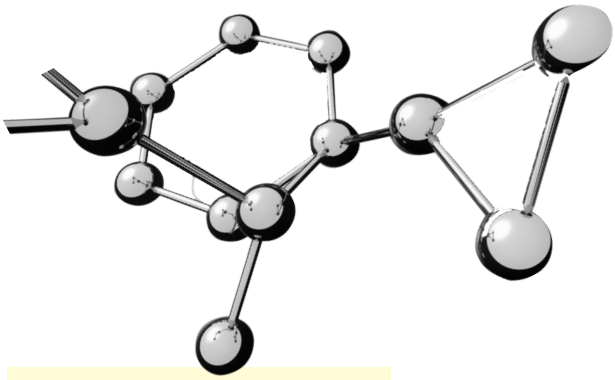


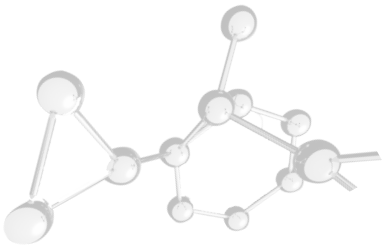
Table of Contents

Who We Are

The Human Factors, Instrumentation & Controls Division (HFICD) of the American Nuclear Society (ANS) is devoted to the human component of nuclear energy, along with the underlying instrumentation, control, and human–machine interface technologies.

HFICD has been part of the ANS since 1979, when the Technical Group for Human Factors was formed. The Group became a division in 1985 and was broadened to include Instrumentation & Controls in 2008. Today, the HFICD has more than 800 members (166 working in utilities, 128 consultants, 99 educators, and many others).

The HFICD focuses on the information processing, control, and human system interaction aspects of nuclear systems. This includes the sensors that transduce physical processes into signals, monitoring, control and communications systems that process data into information and manage control and protective actions, the interfaces that display plant operational and health information, and the human cognitive capabilities that enable perception and interpretation of information. The interaction of humans with automation and their decision processes are particular foci of the division.



Thoughts from the Chair . . .

H.M. "Hash" Hashemian

As we say so long to winter and welcome in spring, I want to take this opportunity to say thank you to all our HFICD members for allowing me the privilege of serving as your Chair for the past year. In stepping down, I hand over the reins to Joe Naser as the incoming HFICD Chair for the 2013–2014 year.

I want to acknowledge all that we have accomplished over this past year. We have made great strides toward improved information sharing and increased communication among our ever-growing membership base. A new HFICD website (http://hficd.ans.org) has been designed to encourage online collaboration. In addition, the website complements our current HFICD newsletter as a tool designed to encourage active participation of existing HFICD members and to aid in recruiting new members. Between both the website and newsletter, it is my hope that HFICD will increase its exposure and visibility in the industry marketplace and properly represent our division.

Other positive accomplishments include:

- Establishing a new set of standing committees to assist the division in maintaining and expanding its productivity and visibility within the industry.
- Hosting a successful NPIC & HMIT meeting in San Diego due to the hard work and dedication of many of our members.
- Beginning to work on a tactical and strategic plan to help map out our future activities as a division and to help identify areas for improvement.
- Finalizing the division Rules and Bylaws, which will provide clarity moving forward on how certain activities shall be handled.

Looking toward future HFICD events, I want to let you all know about the Nuclear Plant Instrumentation, Control and Human–Machine Interface Technologies (NPIC&HMIT) 2015 Conference. Even though it's still a couple years away, please mark your calendars now and join us in Charlotte, North Carolina, from February 22–26, 2015. As we are in the initial planning process we have worked on the calendar placement, identifying key session ideas, technical program committee members, developing an informative website, including our new logo, and developed a tentative flyer with important conference details. As General Chair for the meeting, I encourage you all to be a part of this exciting event. We hope to see you there!

Once again, I am thrilled to welcome Joe Naser as the incoming HFICD Chair for the 2013–2014 year. Joe is a close colleague of mine, and I couldn't think of a better choice to take the organization to the next level of growth and development.

In closing, I again want to thank you for your participation in HFICD. Your involvement and contributions as members help to sustain this organization for the benefit not only of fellow members but of the industry as a whole. I look forward to my future involvement in HFICD and NPIC&HMIT 2015 as the organization continues to grow and succeed in offering new, innovative perspectives in the development of the next generation of nuclear technology.

Take care and happy spring!

Hash

Division Officers for 2012–2013

H.M. "Hash" Hashemian
Chair

Joseph A. Naser, II
Vice Chair

Sacit M. Cetiner
Secretary

Andrew Lang
Treasurer

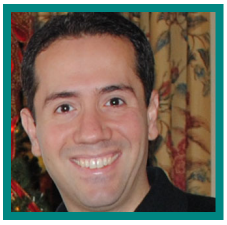
Richard T. Wood
Immediate Past Chair

Incoming Officers for 2013–2014

Joseph A. Naser, II
Chair

John M. Mahoney
1st Vice Chair

Sean M. Smith
2nd Vice Chair



Sacit M. Cetiner
Secretary

Terry W. Jackson
Treasurer

HFICD Executive Committee

Term Ending in 2013

Pamela Hernandez
J. Wesley Hines
Sean Smith

Term Ending in 2014

William Crumpacker
David Holcolmb
Frank Lipinski
John Mahoney
Tim Hurst
Atoosa P-J Thunem
Christopher Weigand

Term Ending in 2015

Jamie Coble
Daniel Cole
Dan Santos
Eric Strong

Term Ending in 2016

Charles C. McCarthy
Barbara A. Newsom
Edward L. Quinn
Carol S. Smidts
Mehdi Tadjalli

Upcoming Meetings

National ANS Meetings

2013 ANS Annual Meeting
June 16–20, 2013
Atlanta, Georgia
Hyatt Regency Atlanta

Utility Working Conference & Vendor Technology Expo
August 11–14, 2013
Hollywood, FL
Westin Diplomat

2013 ANS Winter Meeting & Nuclear Technology Expo
November 10–14, 2013
Washington, D.C.
Omni Shoreham Hotel

NPIC & HMIT 2015 Conference
February 22–26, 2015
Charlotte, North Carolina
Westin Hotel (TBD)

HFICD Meetings

2013 ANS Annual Meeting

The HFICD committee will be meeting on Sunday, June 16, 2013, at the Hyatt Regency Atlanta in Atlanta, Georgia.

11:00 a.m.–12:00 p.m.	*HFICD Program Committee Meeting (open to all)*
12:00 p.m.–2:30 p.m.	*HFICD Executive Committee Meeting (by invitation)*

THE DON MILLER AWARD

Oszvald Glockler being presented with the 2012 Don Miller Award.

The Don Miller Award is presented annually to an individual or team who has made recognized contributions to the advancement within the field of nuclear plant instrumentation, control, and human–machine interface technologies through individual or combined activities that reflect the contributions of Dr. Miller. Previous Don Miller Award winners have been Don Miller, Dr. Bob Uhrig, Rafael Perez, and Oszvald Glockler.

The HFICD Executive Committee is pleased to announce that we have two recipients of the Don Miller Award this year: the late Dr. Julius J. Perensky* and Dr. Dieter H. Wach. Dr. Persensky is awarded for his accomplishments in the field of Nuclear Power Plant Human-Machine Interface Technologies, and Dr. Wach is awarded for his accomplishments in the field of Nuclear Power Plant Instrumentation and Control. The 2013 recipients will be honored during the 2013 ANS Annual Meeting in Atlanta, Georgia, on June 17, 2013.

Dr. Julius J. Perensky

Dr. Dieter H. Wach

**See next page for the full announcement of Dr. Persensky's passing.*

SAD NEWS OF PASSING OF A BELOVED HFICD COLLEAGUE JAY PERSENSKY 1945~2013

It is with great sadness that we announce that Dr. Julius J. Persensky passed away on Saturday, April 20, 2013.

For more than 40 years, Dr. Persensky has been an influential and leading presence in the nuclear industry and an internationally recognized expert and contributor to the Human Factors and Instrumentation and Controls profession. With a Doctorate degree in Industrial Psychology, Jay spent the past 40 years applying Human Factors and Behavioral Science technologies to problems in the work environment, especially as related to safety of nuclear power plants. Recently, Jay served as a private consultant to government, industry, laboratories, and private organizations on operational, organizational, research, and regulatory issues.

HFICD recently announced Jay as one of the two recipients of this year's Don Miller Award, given in recognition of outstanding accomplishments in the field of instrumentation, control, and human–machine interface technologies. The award will be presented to a family member or friend of Jay at the American Nuclear Society (ANS) annual summer meeting in Atlanta, Georgia, on Monday, June 17, 2013.

Jay retired from the U.S. Nuclear Regulatory Commission (NRC) after 28 years as a regulator and researcher. He also served as the agency's Senior Technical Advisor for Human Factors for the last six years, providing technical advice and leadership on human performance and organizational factors issues and plans to management and staff throughout the NRC.

On the international front, Jay worked with the Halden Reactor Project, the Nuclear Energy Agency (NEA), and the International Atomic Energy Agency (IAEA) on special projects and planning related to safety culture and human and organizational factors. Prior to joining the NRC, Jay served for 10 years as a Senior Behavioral Scientist at the U.S. National Bureau of Standards (NBS), now the National Institutes for Science and Technology (NIST).

Jay leaves behind his wonderful wife, Judith A. Persensky; daughter Julia A. Van Hook and her husband James V. of Broad Run, Virginia; daughter Tanya M. Sullivan and her husband Erik J. of Arlington, Virginia; and grandchildren James J., John A. and Mary C. Van Hook, and Timothy P., Anne M. and Grace M. Sullivan. Memorial charitable contributions may be made in Jay's name to either Shady Grove Hospital I.C.U., c/o Shady Grove Adventist Hospital Foundation, 14955 Shady Grove Road, Suite 165, Rockville, MD 20850; or the Well/Robertson House, 1 Wells Avenue, Gaithersburg, MD 20877.

Jay was an active member in the American Nuclear Society's Human Factors, Instrumentation & Controls Division (HFICD). He will be missed by a great many people in the nuclear industry.

HFICD Committees

Finance Committee
Sacit Cetiner; cetinerms@ornl.gov
*Hash Hashemian; hash@ams-corp.com
*Andrew Lang; langaw@westinghouse.com
John Mahoney; jmahoney@entergy.com

Membership Committee
*Sacit Cetiner; cetinerms@ornl.gov
Kelly Jordan; kjordan@mse.ufl.edu
*Andrew Lang; landaw@westinghouse.com
Ted Quinn; tedquinn@cox.net

Honors and Awards Committee
*Sacit Cetiner; cetinerms@ornl.gov
*Hash Hashemian; hash@ams-corp.com
David Holcomb; holcombde@ornl.gov
Ted Quinn; tedquinn@cox.net

Technical Program Committee
*Sacit Cetiner; cetinerms@ornl.gov
Jamie Coble; Jamie.Coble@pnnl.gov
*Hash Hashemian; hash@ams-corp.com
Ryan Meyer; Ryan.Meyer@pnl.gov
Ludovic Pietre-Cambacedes;
Ludovic.pietrecambacedes@edf.fr
Sean Smith; sean.m.smith@lmco.com

Communication Committee
*Sacit Cetiner; cetinerms@ornl.gov
Jamie Coble; Jamie.Coble@pnnl.gov
Daniel Cole; dgcole@pitt.edu
*Hash Hashemian; hash@ams-corp.com
*Joe Naser; jnaser@epri.com

Scholarship Committee
Steven Arndt; Steve.Arndt@nrc.gov
*Hash Hashemian; hash@ams-corp.com
Wes Hines; Jhines2@utk.edu
*Andrew Lang; landaw@westinghouse.com
Richard Wood; woodrt@ornl.gov

Nominations Committee
Tim Hurst; timh@hursttech.com
Ted Quinn; tedquinn@cox.net
*Richard Wood; woodrt@ornl.gov

Scholarship Judging Panel
Tim Hurst; timh@hursttech.com
John O'Hara; ohara@bnl.gov
Ted Quinn; tedquinn@cox.net
Richard Wood; woodrt@ornl.gov

**It is mandated by the HFICD Rules and Bylaws that this person serves on this committee (R9.1.2).*

New and Revised HFICD Standard Rules and Bylaws approved by the American Nuclear Society in May 2013. For more information, go to http://hficd.ans.org/wp-content/uploads/2013/05/HFICD-Rules-and-Bylaws-Feb.2013.pdf.

Industry News

PSU ATR NSUF Assessment of Ultrasonic Transducers Survivability Under Irradiation Project Underway

Participants of a recently awarded Advanced Test Reactor National Scientific User Facility (ATR NSUF) project, which is led by Professor Bernhard Tittmann from the Pennsylvania State University (PSU), met at the Massachusetts Institute of Technology (MIT) to discuss details related to an irradiation that will be conducted at the MIT Research Reactor (MITR). The objective of this irradiation is to evaluate the survivability of piezeoelectric and magnetostrictive transducers under irradiation. The planned MITR irradiation will expose these ultrasonic transducers to higher fluencies than prior tests (e.g., fast fluxes up to 10^{21} n/cm^2). Data obtained from this irradiation will be used to assess the viability of ultrasonic transducers for use in Materials and Test Reactor (MTR) irradiations. As noted by Professor Tittmann, "The in-pile use of ultrasonic transducers during MTR irradiations is extremely important because they could provide users higher accuracy and higher resolution data related to the performance of candidate fuels and materials when exposed to the harsh conditions associated with irradiation testing."

In addition to exposing these transducers to higher fluencies, the proposed irradiation is unique because it will accommodate more types of transducers than tested in prior evaluations. The proposed test capsule design, as shown in Figure 1, will accommodate up to nine transducers (six piezeoelectric and three magnetostrictive designs) and will accommodate instrumentation that can monitor test conditions in real-time. To maximize the benefit of test results from this irradiation program to U.S. DOE's Office research programs, a Nuclear Energy Enabling Technology (NEET) program is funding an oversight effort with representatives from several U.S. DOE laboratories, including the Pacific Northwest National Laboratory, the Argonne National Laboratory, and the Idaho National Laboratory. In addition, because of interest in the potential for in-pile ultrasonic sensors, the French Alternative Energies and Atomic Energy Commission (CEA) is participating using CEA funding.

The MIT meeting (see Figure 2) allowed the research team to meet together to discuss details related to the irradiation capsule design, the planned irradiation conditions, and laboratory tests conducted by PSU to support the irradiation. It is currently planned that the research team will have the test capsule ready for insertion in the MITR by September 2013.

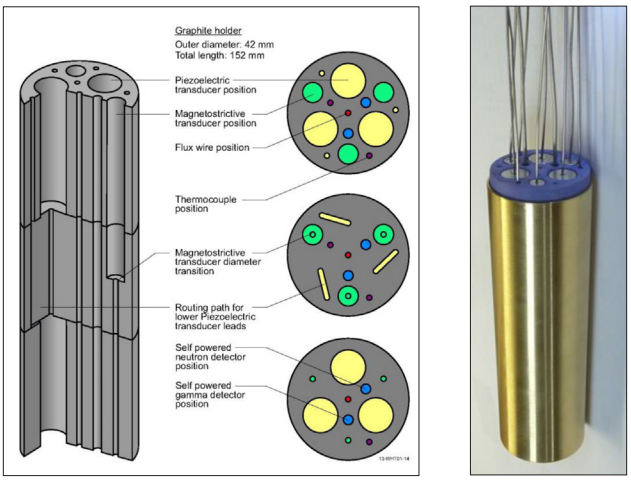


Figure 1. Proposed capsule design (schematic and mockup)

(continued on page 10)

Figure 2. Research team participants discussing mockup of proposed test capsule (left to right, Pradeep Ramuhalli, PNNL; Brian Reinhardt, PSU; Gordon Kohse, MIT; Joshua Daw, INL; and Hual-Te Chien, ANL)

Project Participants

Professor Bernhard Tittmann and
Brian Reinhardt, PSU

Gordon Kohse and Lin-Wen Hu, MIT

Joshua Daw, Joe Palmer, and Joy Rempe, INL

Pradeep Ramuhalli and Robert Montgomery, PNNL

Hual-Te Chien, ANL

Jean-François Villard, CEA

Industry News

AREVA Provides Power Plant Simulator to the Center for Advanced Engineering and Research

LYNCHBURG, Virginia, January 22, 2013—AREVA and the Center for Advanced Engineering and Research (CAER) announced today that AREVA has signed an agreement to provide a nuclear power plant simulator to CAER in the New London Business and Technology Center in Bedford, Virginia. The simulator, a high fidelity simulation of AREVA's EPR™ plant, will be used for human-machine interface (HMI) and human factors (HF) studies. This simulator will facilitate training in and investigation of digital instrumentation and control systems, cyber security and operation of a nuclear power plant.

"We are pleased to be associated with CAER and to provide this simulator to perform important studies and analyses that will directly contribute to the operational excellence of America's nuclear power industry," stated Michael Rencheck, CEO and President of AREVA, Inc.

The Center for Safe and Secure Nuclear Energy, one of the primary research areas at the CAER, features the EPR™ simulator as part of a configurable control room, which will provide invaluable technical input for regulatory guidance in a range of applications, including control room design, digital technologies and human performance measures. The AREVA EPR™ plant simulator consists of four operator stations, each able to accommodate up to 10 monitors. CAER will be able to easily configure the number of monitors and interface displays on each monitor for various experiments. The four operator stations can be used as part of an integrated control room environment or separately for individual studies.

CAER is a unique facility made possible in part by generous support from the Virginia Tobacco Indemnification and Community Revitalization Commission (TICRC), which provided more than $10 million in grants to support construction of the facility and the purchase of specialized equipment for the control room.

"To date, the United States has not had a configurable control room simulator for research use like the one at the Halden Man-Machine Lab in Norway," said Bob Bailey, Executive Director for the CAER. "The simulator provided by AREVA under this agreement, will now enable us to perform critical experiments in the U.S. in areas such as alarm systems, control room design, display navigation and development of human performance measures."

The Center for Advanced Engineering and Research is a non-profit organization located just outside of Lynchburg, Virginia within Virginia's Region 2000 Partnership that creates working relationships between high tech industries, major R&D centers and university researchers, and facilitates professional development opportunities for scientists and engineers in the region. Its 30,000 square-foot research and education facility, located in the New London Business and Technology Center in Bedford County, will serve as the region's source for industry innovation in nuclear and wireless technologies. For more information on the CAER visit www.caer.us.