

Hidekazu Yoshikawa (Symbio Community Forum, President)

Prof. Hidekazu Yoshikawa, Professor Emeritus Kyoto University, has served in the research activities on human-machine systems worldwide and contributed to organizing many international conferences such as IFAC-MMS, CSAPC, HCII, etc. With his retirement from Kyoto University in the end of March 2006, he started a Non-profit Organization Symbio Community Forum in Kyoto, Japan in July 2006, by which he has been contributing social and international activities to promote the symbiosis of science and technology with humans, society and environment. He has published more than ten books and more than 400 articles in academic journals, and



he got several best paper awards from several academic societies and international conferences. He was also awarded as a distinguished contributor of nuclear safety in 2005 by the Ministry of International Trade and Industry in Japan, for his long year contribution in developing full digital I&C and HMIT systems for nuclear power plants in Japan. American Nuclear Society awarded him Don-Millar Award 2014 by the recommendation of Human Factors Division of ANS. With the support of 111 Project of HEU/CNST, he especially had started a new international conference series ISSNP in 2007 to promote research for symbiotic nuclear power system together with the publication of a new International Journal of Nuclear Safety and Simulation (IJNS) in 2010, as the Editor-in-Chief.

I-1 Introductory review of the NUREG-0711 Rev. 3 and the relevant Guideline being under discussion in the Japan Electric Association

Abstract:

The U.S. human factors engineering program (NUREG-0711) aims to rationally improve the safety of nuclear power generation by programming not only the design and manufacture of the main control room of a nuclear power plant, but also the entire plant, including the other software aspects such as operating procedures, education and training, etc., by applying the human engineering principles. Since the latter half of the 2010s, the IAEA has issued a safety guide based on the US human factors engineering program (NUREG-0711) as SSG-51, and the US NRC has issued human factors engineering guide based on SSG-51 that systematically organizes regulatory requirements, and the IEC is also considering a similar human factors engineering guide. This presentation provides an overview of the latest NUREG-0711 Rev. 3, followed by an introduction to similar initiatives currently under preparation by the Japan Electric Association as human factors engineering standard in Japanese nuclear industry.

II An Active Learning Practice on Talent Cultivation on nuclear and energy sciences

Abstract:

Prof. Yoshikawa will first make a small guidance on an active learning method being developed by Prof. Takeshi Yao (Prof. Emeritus Kyoto University). Then all participants (first Chinese students, second Chinese teachers, and last Japanese participant) will be asked to make a short speech in English for self-introduction including their research activities on the basis of Prof. Yoshikawa guided speech subject.

III-3 Introduction of Heliotron J facility and the scope of the case study

Hidekazu Yoshikawa (Kyoto University)

Abstract:

The Symbio Community Forum is conducting a joint research project titled "Experimental research on advanced failure diagnosis and reliability evaluation methods for complex energy systems" with the support of Zero Emission Research Base of the Institute of Advanced Energy, Kyoto University. In FY2023, we are proceeding with experimental application and verification of failure diagnosis and reliability evaluation methods for the Heliotron J plasma experimental facility at the Institute of Advanced Energy. In this presentation, the principles of fusion power generation and the configuration of tokamak-type fusion power generation system will be explained first, and then introduce the specific character of Heliotron-type plasma device, and system configuration of the Heliotron J experimental facility.