USC Viterbi School of Engineering
Ming Hsieh Department of Electrical Engineering

Seminar Announcement

Inverse Problems and the Importance of Unconscious Processes

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1:30pm – 2:30pm
EEB 132

Mathematics provides a marvellous illustration of the innate ability of the brain to 'learn' as well as to 'create' via the process of making associations and generalisations. This forms the basis of abstract thinking which indeed finds its apotheosis in mathematics. The discovery of a new method for solving partial differential equations (PDEs), which has been acclaimed as '"the most important development in the analysis of PDEs since the work of Fourier in the 18th century", will be used as an illustrative example of the above process. This unexpected discovery is also related to recent progress in the analysis of certain inverse problems arising in medical imaging. The role of this development, as well as of mathematics in general, in elucidating the importance of unconscious processes will be discussed.

A.S. Fokas has a BSc in Aeronautics from Imperial College (1975), a PhD in Applied Mathematics from the California Institute of Technology (1979) and an MD from the University of Miami, School of Medicine (1986). In 1986 he was appointed Professor and Chairman of the Department of Mathematics and Computer Science of Clarkson University, USA. In 1996 he was appointed to a Chair in Applied Mathematics at Imperial College, UK. In 2002 he was appointed to the newly inaugurated Chair in Nonlinear Mathematical Science at the University of Cambridge, UK. In 2000 he was awarded the Naylor Prize, which is the most prestigious Prize in Applied Mathematics and Theoretical Physics in UK (the last earlier recipient was S.W. Hawking). He has also been awarded the Aristeion Prize in Sciences of the Academy of Athens which is the most important prize of the Academy given every four years to a single scholar of Greek origin, as well as the Excellence Prize of the Bodossaki Foundation which is the premier scientific prize in Greece. He has received honorary degrees from seven Universities and also has been decorated as the Commander of the Order of Phoenix by the President of the Hellenic Republic. In 2009 he was selected as a Guggenheim Fellow. He is a member of the European Academy of Sciences and he is the first ever Applied Mathematician to be elected a full member in the Academy of Athens. He is a Professorial Fellow at Clare Hall College, Cambridge. He is the author or co-author of three monographs and of more than 300 papers, as well as the co-editor of seven books. ISI Web of Science includes A.S. Fokas in the list of the most highly cited researchers in the field of Mathematics in 2000-2012.

Host: Professor Sandeep Gupta, sandeep@usc.edu