UNIVERSITÀ DEGLI STUDI DI GENOVA

Dottorato in Fluidodinamica e Processi dell'Ingegneria Ambientale
Progetto Marie Curie EST "FLUBIO"

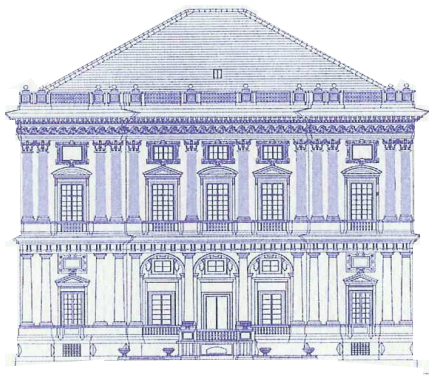
AVVISO DI SEMINARIO

"Fundamental Studies of Fluid Instabilities and Turbulence, and their Possible Impact on Technology"

Prof. Peter A. Monkewitz

Swiss Federal Institute of Technology
Lausanne, Switzerland

Giovedì 14 Maggio, 2009 – ore 16.00
Facoltà di Ingegneria,
Aula A11
Villa Giustiniani Cambiaso



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Fundamental Studies of Fluid Instabilities and Turbulence, and their Possible Impact on Technology

In this presentation a case is made for fundamental research, which is both amusing to academics and contributes to improved technology. An experimental study of diffusion flame instabilities near extinction is a first example. By validating theoretical results in a radically simplified setting, the experiments provide a better understanding of local extinction processes and pave the way for the conception of better flamelet models which will eventually be necessary to optimize industrial lean combustors. As second example, a theory-inspired analysis of turbulent boundary layer experiments is presented. In particular, the impact of a seemingly academic debate about model parameters on today's industrial flow computations is demonstrated.

Biographical sketch of Peter A. Monkewitz

After graduating in physics from the Swiss Federal Institute of Technology in Zurich, he received his Ph.D. from the same institution in 1977 with a thesis on internal acoustics. After a postdoc in the Aerospace Department of the Univ. of Southern California in Los Angeles he joined the faculty of the School of Engineering at UCLA in 1980. His areas of interest include hydrodynamic instability, bluff body wakes, turbulence and acoustics. In 1988 he was awarded the Humboldt prize and spent the academic year 1989/90 as Humboldt awardee at the Technical University in Berlin. In 1992 he was elected Fellow of the American Physical Society. From 1993 to 2009 he held the chair for experimental fluid mechanics and headed the Laboratory of Fluid Mechanics (LMF) of the Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland. He has been Chairman of its Mechanical Engineering Department from July 1997 to December 2000, co-organizer of the 1999 "Research programme on turbulence" at the Isaac Newton Institute in Cambridge, Associate Editor of the Journal of Fluid Mechanics from 1995 to 2000, part-time "program monitor" for the Swiss National Science Foundation from 1997 to 2006 and a member of the EUROMECH Council. He is currently an Associate Editor of Physics of Fluids, member of an ERC panel and is active in IUTAM.

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