



## WORKSHOP

Department of Industrial Engineering – Faculty of Engineering  
University of Salerno - Fisciano (SA)

3-4 July 2016  
room 136

### COMPUTATIONAL VIBROACOUSTICS

**Roger Ohayon, Professor**  
**Structural Mechanics and Coupled Systems Laboratory**  
**Conservatoire National des Arts et Metiers (CNAM)**  
**Paris – France**

#### Program

*3 July*

- 10.00 **Workshop introduction** (Prof. Renato Esposito – Machine Design Group, Faculty of Engineering, University of Salerno)
- 10.15 Linear vibrations of structures. Basic equations. Variational formulations and modal analysis. Reduced order models and dynamic substructuring.
- 11.15 **Break**
- 11.30 Basic equations of linearized equations of linear acoustic fluid. Choice of field variables. Static behaviour. Acoustic modes.
- 12.30 **Discussion**
- 13.00 **End of seminar (day 1)**

4 July

- 10.00 **Workshop introduction** (Prof. Renato Esposito – Machine Design Group, Faculty of Engineering, University of Salerno)
- 10.15 Finite element discretization and symmetry of operators and matrices. Reduced order models. Introduction of wall damping through local impedance model. Notions on reduction of vibrations using passive and / or adaptive smart structures interface treatments.
- 11.15 **Break**
- 11.30 Applications
- 12.30 **Discussion**
- 13.00 **End of seminar (day 2)**

**Basic books:**

*H.J Morand and R. Ohayon – Fluid-Structure Interactions – Wiley (1995)*

*R. Ohayon and C. Soize – Structural Acoustics and Vibrations – Academic Press (1998)*

*G. Sandberg and R. Ohayon (eds) – Computational Aspects of Structural Acoustics and Vibration – CISM Courses and Lectures, vol. 505, Springer (2008)*

*R. Ohayon and C. Soize – Advanced Computational Vibroacoustics - Cambridge University Press - 2014*

*Workshop organisation*

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