

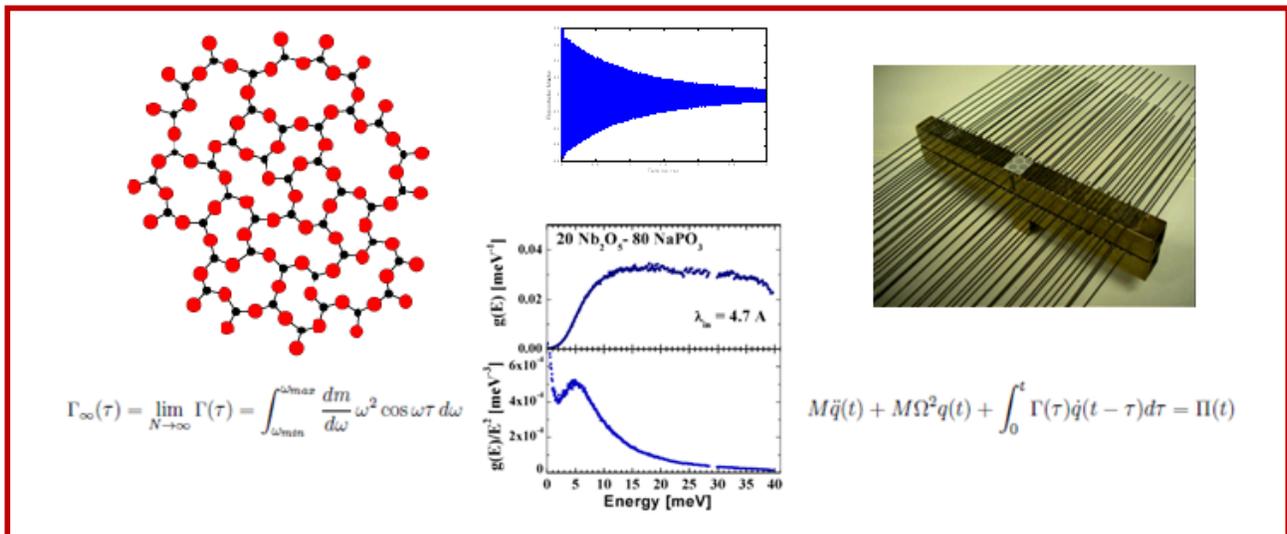


Workshop on

Vibrational energy transport and dissipation

6-7 JUNE 2011
Rome, Italy

National Science Foundation & University of Rome Faculty of Engineering of La Sapienza



Organizing Committee: A. Akay, A. Carcaterra, A. Pierce

The general topic of the workshop intends to cover the fundamental issues associated with energy transfer ranging from atomic to engineering length scales:

- I. (Fundamentals of) Physical mechanisms for the dissipation of acoustical and vibrational energy
- II. Transfer of energy from vibrating structures to other structures and to the environment
- III. Fundamental statistical theories for vibrational energy transfer
- IV. Methodologies for redirecting energy flow in structures to achieve desired vibrational reductions

The workshop is expected to coalesce the knowledge on such topics as periodic structures, localization, statistical energy analysis, fuzzy structures with knowledge in areas such as physics of complex systems, meta-materials, irreversibility and dynamics of disordered systems.

WORKSHOP PROGRAM

Monday 6th

9:00-9:15 Vestroni, **Welcome** of the Dean of the Faculty of Civil and Industrial Engineering
9:15-9:30 Sestieri (Univ. Sapienza, Dept. Mech. Aerosp. Eng., IT), **An introduction**
9:30-10:00 Pierce (Boston Univ., Dept. Eng., USA), **Overview, Fuzzy damping to Dissipation in Solids (TENTATIVE)**
10:00-10:30 Discussion

10:30-11:00 *Coffee Break*

11:30-12:00 Feit (DTMB, USA), **Engineering Applications of Fuzzy Structures.**
12:00-12:30 Discussion

12:30-14:00 *Lunch*

14:00-14:30 Weaver (Univ. Illinois - CU, Dept. Phys., USA), **Synchronization and Stimulated Emission from mechanical phase oscillators in a resonant structure: Mechanical Lasing**

14:30-15:00 McCoy (Catholic Univ. Am., Dept. Civil Eng., USA), **Modeling the response of a complex dynamical system to a complex forcing**
15:00-15:30 Discussion

15:30-16:00 *Coffee Break*

16:00-16:30 Dell'isola (Univ. Sapienza, Dept. Struct. Eng., IT) **Piezo-ElectroMechanical Structures**
16:30-17:00 Vignola (Cathol. Univ. Am., Dept. Mech. Eng., USA) **Disorder in subordinate oscillator arrays used to shape the impedance and response of dynamic systems**
17:00-17:30 General Discussion

Tuesday 7th

8:30-9:00 Ruocco, (Univ. Sapienza, Dept. Phys., IT), **The Present Understanding of the Vibrational Dynamics in Glasses**
9:00-9:30 Schirmacher (Techn. Univ. Munich, Dept. Phys., GE), **Localization in disordered systems**
9:30-10:00 Discussion

10:00-10:30 *Coffee Break*

10:30-11:00 Akay (Bilkent Univ./Carnegie Mellon Univ., Dept. Eng., USA, TK) **Dissipation in linear systems**
11:00-11:30 Carcaterra (Univ. Sapienza, Dept. Mech. Aerosp. Eng., IT) **Irreversible Vibration Confinement and the Minimum-Variance-Bound Principle**
11:30-12:00 Discussion

12:00-13:30 *Lunch*

13:30-14:00 Fazio, **Self-confinement of light in nonlinear media due to harmonic energy transfer** (Univ. Sapienza, Dept. Energ., IT)

14:30-15:00 Scopigno, (INFN, IT) **Acoustic properties in amorphous materials**

15:00-15:30 *Coffee Break*

15:30-17:00 Round Table