

ICNEM XVII, 2012

Schedule

Sunday July 1

5:30 - 7:00 Registration and Reception

Monday, July 2

9:30 - 9:50

Welcome and Introduction

P. Johnson and M. Meo

9:50 - 10:30

Overview of Nonlinear Dynamics Research at Los Alamos

J. Bossert

Elastic Nonlinear Diagnostics in Concrete and Cement

10:30 - 11:10

Probing Materials Damage at Various Depths by Use of Time Reversal Elastic Nonlinearity Diagnostic:
Application to Concrete

C. Payan et. al.

11:10 - 11:40 Break

11:40 - 12:20

Application of Nonlinear Elastic Resonance Spectroscopy for Damage Detection in Concrete

J. TenCate

12:20 - 1:00

Nonlinear Acoustics from Laboratory to Field: Application to Civil Engineering Structure.

S. Kodjo

1:00 - 2:00 Lunch

2:00 - 2:30

Macro-Crack Characterization in Concrete by Diffuse Ultrasound Under Low Frequency Dynamic Loading

Quiviger et. al.

Time Reversal

2:30 - 3:10

Improving Time Reversal Focusing Through Deconvolution

TJ Ulrich et. al.

3:10 - 3:50

First Simulations of the "Candy Can" Concept for High Amplitude Non-Contact Excitation

Steven Delrue / Koen Van Den Abeele

3:50 - 4:30 Break

4:30 - 5:00

Impact Source Localisation in Anisotropic Media Using Time Reversal Algorithms.

M. Meo

5:00 - 5:30

One Channel Time Reversal

M. Scalerandi et. al.

Tuesday, July 3

Theory and Modeling: PM-Space, Other Forcing Fields, High-Strain Rates

8:45 - 9:30

Cellular Solids: Response to Fluids

R. Guyer / A. Kim

9:30 - 10:15

(Non)Linear (Non)Elastic Deformation of Microporous Materials Subjected to Sorption

D. Derome et. al.

10:15 - 11:00 Break

11:00 - 11:30

Nonlinear Wave Modulation Spectroscopy: Quasistatic Solution and Experimental Evidence

J. Kober / Z. Prevorosky

11:30 - 12:00

Nonlinear Elastic Models within Linearized Elasticity and Applications

V. Kulvait

12:00 - 2:00 Lunch

2:00 - 2:30

The Role of Prestress on Propagation and Interaction of Weakly Nonlinear Elastic Waves

W. Domanski

2:30 - 3:15

Modeling Shock Waves in Rock and Damage

C. Bradley

3:15 - 3:45

PM Space Density Identification for Nonlinear Physical Systems: "L-2" and "D-divergence" Minimization Methods

J.Papoušková et. al.

3:45 - 4:30 Break

Nonlinearity in Bubbles

4:30 - 5:00

Characterization of Single Contrast Agent Microbubble Vibrations with an Acoustical Camera
G. Renaud et. al.

5:00 - 5:45

Linear and Nonlinear Resonant Acoustic Spectroscopy of Micro Bubbles Cloud
M. Cavaro et. al.

Wednesday, July 4

Medical Applications

8:45 - 9:30

Nonlinear Ultrasound Monitoring of Single Crack Propagation in Cortical Bone
S. Hauptert et. al.

9:30 - 10:00

Potential of the Scaling Subtraction and the Cross-Correlation Methods for Osseointegration Monitoring
J. Riviere et. al.

Nonlinear Methods: Multi-Wave Approaches

10:00 - 10:45

Strain and Strain-Rate Dependencies in Nonlinear Elastic Solids Applying Dynamic Acousto-Elasticity Testing
J. Riviere et. al.

10:45 - 11:15 Break

11:15 - 12:00

In-Situ Measurement of Velocity Change Under Induced Strong Ground Motion
C. Larmat et. al.

12:00 - 12:45

Multiwave Imaging of the Earth's Subsurface: A Laboratory Scale Feasibility Study
T. Gallot et. al.

12:45 Lunch / Afternoon Free / Excursion

Alternative Workshop on Dynamic Acousto-Elasticity (DAE)

2:30

Some Thoughts on a Theoretical Foundation for DAE
R. Guyer

Discussion and Other Contributions

Thursday, July 5

Nonlinear NDE

8:45 - 9:30

High-Selectivity Imaging of Closed Cracks by Nonlinear Ultrasound

Y. Ohara et. al.

9:30 - 10:15

Nonlinear Ultrasonic Testing of Carbon Fibre Reinforced Plastics in the Very High Cycle Fatigue Regime

T. Helfen et. al.

10:15 - 11:00 Break

11:00 - 11:15

Neutron+ Experiments to Explore the Physical Mechanisms of Nonlinearity and Slow Dynamics

J. Ten Cate et. al.

Contact Mechanics and Granular Media

11:15 - 12:00

Modeling nonlinear response from distributed damage and kissing bonds

K. Van Den Abeele

12:00 - 12:30

Prediction of Static Moduli in Near Surface Jointed Rocks from Full Wave Sonic and Other Well Log Data

Frank Chalupa

12:30 - 2:15 Lunch

2:15 - 3:00

General Solutions to the Mechanical Contact Problem

V. Aleshin

3:00 - 3:30

The Influence of External Factors on the Elastic Properties of 3-D Unconsolidated Granular Medium

A.Korobov et. al.

3:30 - 4:15 Break

Nonlinearity in Sheared Granular Media: From the Laboratory to Simulation to Earth

4: 15 - 4:45

Seismic Radiation from Regions Sustaining Brittle Damage

Y. Ben-Zion

4:44 - 5:30

Nonlinear Dynamical Triggering of Great Earthquakes

E. Daub et. al.

Friday, July 6

Nonlinearity in Sheared Granular Media: From the Laboratory to Simulation to Earth - Continued

8:45 - 8:55

Lab User Facility

TJ Ulrich

8:55 - 9:40

Earthquake Processes

C. Marone

9:40 - 10:25

Elastic Linear and Nonlinear Behaviors in Slip Processes

P. Johnson et. al.

10:25 - 11:10 Break

11:10 - 11:55

Statistics and Mesoscale Mechanics of 2D Stick-Slipping, Sheared Granular Layers: Improving Our Understanding of Dynamic Earthquake Triggering Physical Controls

M. Griffa et. al.

11:55 - 12:40

Pore Pressure Evolution During the 'Seismic Cycle' of Laboratory Experiments

M. Scuduri et. al.

12:40 - 1:20

3D Molecular Dynamics Simulations of Triggering of Slip in Stick-Slipping, Sheared Granular Media by Means of External Vibration: Learned Lessons for Dynamic Earthquake Triggering

B. Ferdowsi et. al.

2:00 Adjourn