•Time reverse acoustics as it applies to probing the elastic nonlinear behavior of materials
•The role of elastic nonlinear behavior in slip/avalanche physics and triggering of slip by nonlinear acou
•Characterization of nonlinear material properties.
•Modeling and simulation of nonlinear elasticity.
•Earthquakes and geophysics

Cargèse International School 2020

International Conference on Nonlinear Elasticity in Materials

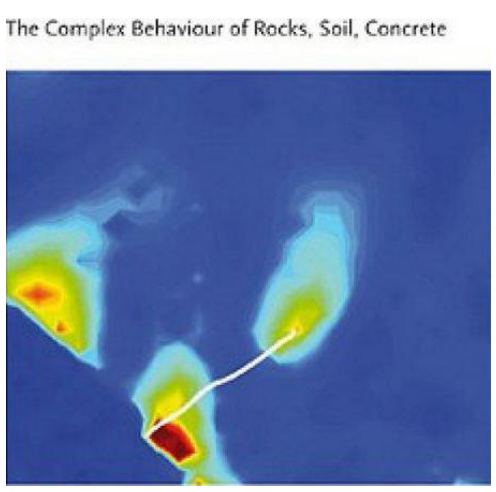
May 23 - 29, 2020

Web site

Paul JOHNSON
Los Alamos National Lab. US
paj@lanl.gov

Cédric PAYAN
Univ. Aix Marseille, FR
cedric.payan@univ-amu.fr

Marcel REMILLIEUX
Los Alamos National Lab. US
mcr1@lanl.gov



The purpose of the yearly International Conference on Nonlinear Elasticity in Materials (ICNEM) is to promote understanding regarding the elastic nonlinear behavior of solids. The primary manifestations of the behavior are characteristic wave distortion, and slow dynamics, a recovery process to equilibrium that takes place linearly with the logarithm of time, over hours to days after a wave disturbance. The link between the diverse materials that exhibit nonequilibrium dynamics appears to be the presence of soft regions, thought to be primarily 'damage' at many scales, ranging from order 10^-9 m to 10^-1 m at least. The regions of soft matter may be distributed as in a rock sample, or isolated, as in a sample with a single crack.

Main topics will include

- Elastic nonlinear behavior of Earth materials, industrial materials and granular media in general.
- Advancements in theoretical approaches.
- Elastic nonlinear behavior in medicine.
- Applications of nonlinear elasticity to nondestructive evaluation of materials.
- Time reverse acoustics as it applies to probing the elastic nonlinear behavior of materials.
- The role of elastic nonlinear behavior in slip/avalanche physics and triggering of slip by nonlinear acoustical waves.
- Characterization of nonlinear material properties.
- Modeling and simulation of nonlinear elasticity.

Eminent scientists in the field will animate the workshop. These include:

Koen Van Den Abeele (Catholic Univ of Leuven, BE) | Guillaume Renaud, Sylvain Haupert (Univ Pierre et Marie Curie, FR) | Marco Scalerandi (Politecnico di Torino, IT) | Yoshikazu Ohara (Tohoku Univ, JP) | Lukasz Pieczonka (AGH Univ of Science and Technology, PL) | Cédric Payan (Aix-Marseille Univ, FR) | Paul Johnson, TJ Ulrich, Jim Ten Cate, Pierre-Yves Le Bas, Marcel Remillieux (Los Alamos National Lab, US) | Lev Ostrovski (Univ of Colorado, US) | Parisa Shokouhi (Penn State, US) | Michel Campillo, Jacques Riviere (ISTerre Grenoble, FR) | Rob Van Der Hilst (MIT, US) | Robert Behringer (Duke Univ, US) | Karen Daniels (North Carolina State Univ, US) | John Popovics (Univ of Illinois, US) | James Langer (Univ of California Santa Barbara, US) | Robert Guyer (Univ of Nevada, US) | Jan Carmeliet (ETH Zurich, CH) | Vladislav Aleshin (CNRS, FR) | Yehuda Ben-Zion (Univ of Southern California, US) | James Rice (Harvard Univ, US) | Vincent Tournat (Univ du Maine, FR)

Scientific Committee

Paul Johnson (LANL US), Cédric Payan (Aix Marseille Univ. FR), Marcel Remilleux (LALN US), Jim TenCate (LANL US), TJ Ulrich (LANL US), Koen Van den Abeele (KU Leuven BE)

Organizing Committee

Jesus Eiras Fernandez (Aix Marseille Univ, FR), Paul Johnson (LANL US), Cédric Payan (Aix-Marseille Univ. FR), Marcel Remillieux (LANL US),

Application and registration

http://icnem.org/index.html
Deadline Application : To be announced
Registration Fees : To be announced