



# TEXAS Geosciences

The University of Texas at Austin

Jackson School of Geosciences

***Seminario di approfondimento***

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## ***Seismic Wave Attenuation in saturated rocks: theory, laboratory and numerical experiments.***

### ***Abstract:***

Geophysical methods allow exploring the subsurface and rely on physical properties of rocks. In the case of seismic tomography, which is the most utilized geophysical method, the knowledge of rheology is pivotal to infer the structure and composition of the Earth interior. Nonetheless, very often geophysicists treat geo-material as purely elastic overlooking at the role of viscoelasticity in absorbing seismic energy. In the present seminar I will introduce viscoelasticity in saturated rocks and how fluids can produce frequency dependent attenuation and dispersion. Focusing on sandstones saturated with different portions of gas and liquids, I will present laboratory experiments performed to investigate wave-induced-fluid-flow and wave-induced-gas-exsolution-dissolution processes and how these attenuation mechanisms could be modelled and reveal details about the subsurface saturation. The present work aims at improving the imaging of subsurface to reveal, for instance, the formation of gas bubbles in volcanic or in oil and gas reservoirs.

***Martedì 5 Luglio***

***Ore 14.30***

***Aula ex biblioteca***



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