UNIVERSITA' DEGLI STUDI DI PADOVA
DIPARTIMENTO DI GEOSCIENZE
Via Gradenigo 6
35131 Padova
www.geoscienze.unipd.it

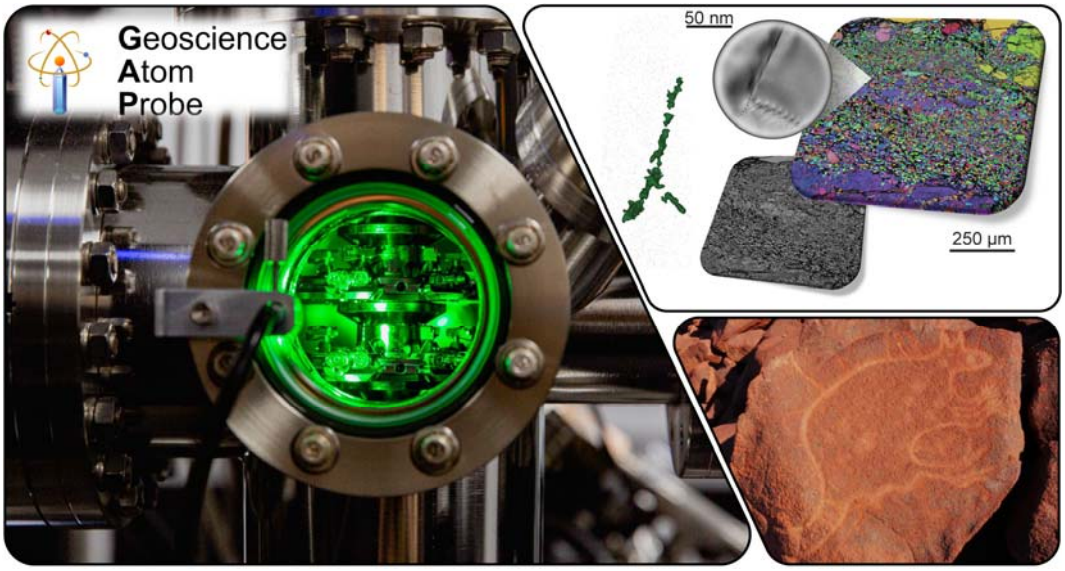
DIPARTIMENTO DI GEOSCIENZE

Seminario

A multiscale approach to fluid-rock interaction processes from Earth's depth to the surface

Giovedì, 26 Ottobre – ore 16:30, Aula Arduino

Relatore: **Dr. Tommaso Tacchetto**
Curtin University, Australia



Crustal fluids (aqueous and/or melts) are important agents of mass transfer, deeply affecting the geochemical and physical evolution of rocks. The availability of fluids and their composition impacts a variety of geological material properties such as melting temperatures, deformation mechanisms or processes of chemical weathering on the surface. On a fundamental level, the complex interplay between rocks and fluids is governed by mechanisms occurring at the atomic scale within minerals and at the interfaces between them. Until recently, the quantification of elemental and isotopic information at this scale has been challenged by technical limitations in measuring compositional data from such small volumes of natural materials. In this seminar, I will show how the application of a suite of cutting-edge techniques can allow us to enhance our understanding of the nanoscale manifestation of fluid-rock interactions and their consequences for larger-scale dynamics. The analytical workflow is applied to type localities of deep crust fluid-melt-rock interaction and weathering patterns of the World's largest sites of human heritage. Follow me on this journey from the deep Earth to the surface, from the kilometer to the nanoscale, while we unveil the tiny little secrets that the lithosphere shares with a free-fluid phase.

Proponente: **Omar Bartoli**