

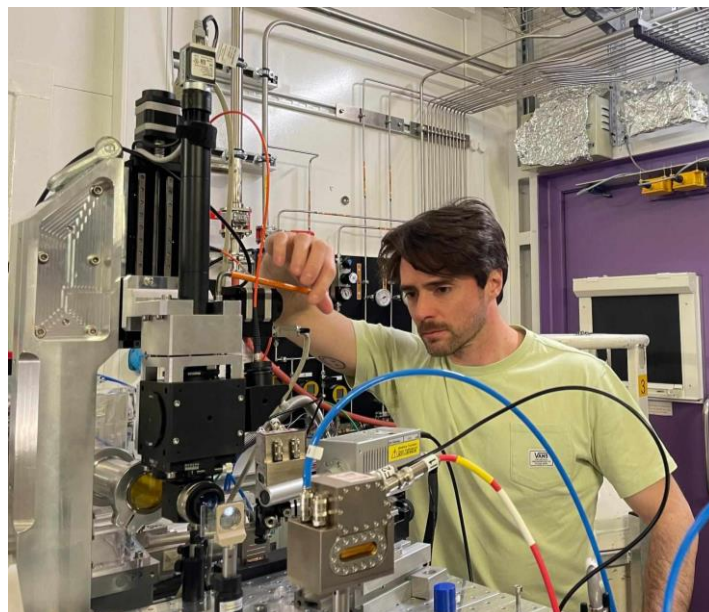
GMPV Seminar:

Tuesday 11 June 2024 at 4.30 pm, room U1-07 Marchetti

The study of the Earth and Planetary interiors

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Natural samples from the deep Earth may have been exhumed to the surface from depths as great as the shallow lower mantle (700-800 km). These samples are diamonds that contain tiny mineral inclusions, which are pristine pieces of rocks formed under those conditions. However, the Earth's radius extends far deeper than the shallow lower mantle, with the center of the inner core located about 6370 km from the surface. Our knowledge of the mineralogy, petrology, and geodynamical and geochemical processes at these depths comes from laboratory experiments. These experiments aim to reproduce the pressure and temperature conditions of such environments to observe how different materials and minerals behave under extreme conditions. Similarly, the study of the interiors of planets such as Mars, Jupiter, Saturn, and Neptune must be conducted experimentally. This presentation will focus on the techniques and applications of real case studies, offering an outlook on new frontiers in mineral physics and science at extreme conditions.



Valerio Cerantola working on the experimental setup at the European Synchrotron (Grenoble, France)