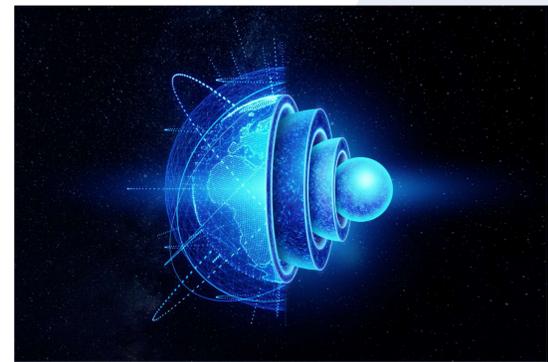


## Upcoming Seminar (Fall 2022/Winter 2023)

Geological processes deep underneath our feet and on remote planetary objects are inaccessible for our direct observation. Yet, they are tremendously important for our understanding of how planets form and evolve. In the Geo.X series *Topics in Planetary Interiors* we invite diverse experts to highlight forefront research on the properties and processes inside Moons and Planets that provide key insights into planetary evolution.



### The presentations will be held via Zoom:

If you are interested in attending the seminar series, please contact Dr. Sergey S. Lobanov ([lobanov1@uni-potsdam.de](mailto:lobanov1@uni-potsdam.de)) for the Zoom details.



**09 January, 2023 at 16:15 (CET)**

**Prof. Dr. Christine Thomas**

### **Seismic structures near the core-mantle boundary**

Institut für Geophysik, Westfälische Wilhelms Universität Münster

In recent years, seismology has provided increasingly detailed images of the interior of the Earth, especially since the onset of the deployment of temporary seismic arrays: Seismic tomography has revealed that some slabs descend into the lower mantle while others seem to stagnate at the mantle transition zone and hot upwellings also seem to show complex behavior. Topography of seismic discontinuities can provide information on the dynamics of the mantle but also on the mineralogy of the Earth's mantle. The region deep in the Earth, the D'' layer (the lowest 200-400 km of the Earth's mantle) and core-mantle boundary region, has been studied extensively, revealing more and more complex features for which several hypotheses to explain them have been brought forward. The observed structures in the D'' region and the lowermost mantle could for example be partly due to the post-perovskite phase transition but other causes are still discussed while the origin of the large low seismic velocity regions (LLSVP) is still debated. The presence of anisotropy, ultra-low velocity regions as well as scatterers may also shed more light on mineralogy and dynamics of the mantle. Other interesting observations include the topography of the core-mantle boundary and possible detections of a layer just beneath the core-mantle boundary. In this presentation we will review some of these observations from above and below the core-mantle boundary region and their connection to dynamics and mineralogy of the Earth's mantle and core. The different hypotheses for causing these structure will be discussed and compared to seismic observations including as much information of the seismic waves as possible.

The TiPI seminar series is organized by Sergey S. Lobanov (Uni Potsdam), Ana Plesa (DLR), Ingrid Blanchard (Uni Potsdam) and Christoph Sens-Schönfelder (GFZ). Contact: [lobanov1@uni-potsdam.de](mailto:lobanov1@uni-potsdam.de)