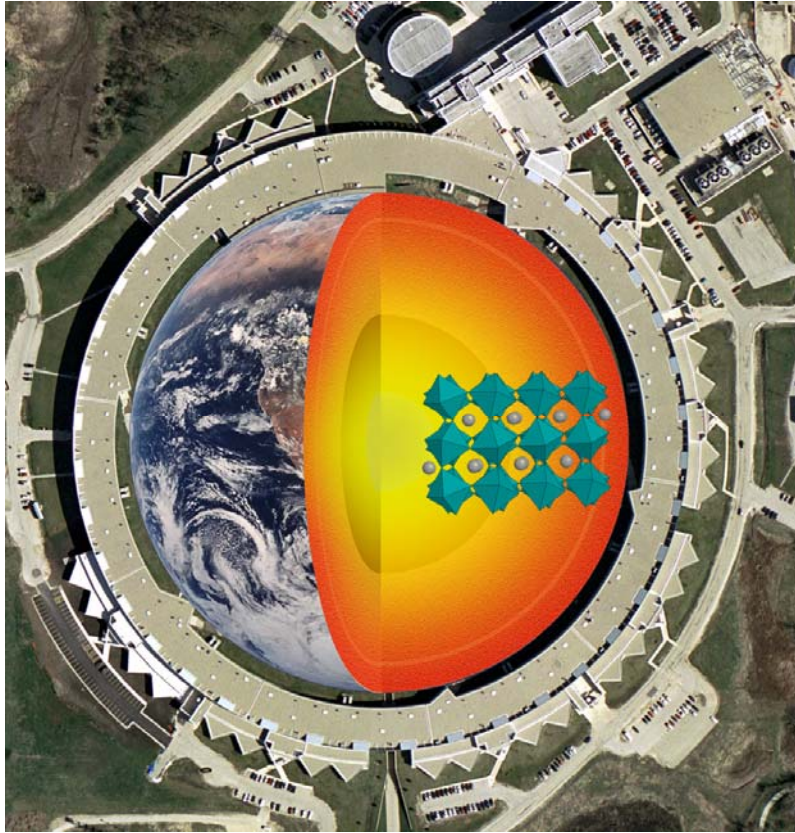


*EARTH-438: Advanced Topics in Geophysics*  
**Mineral Physics: from crust to core**

*Prof. Steve Jacobsen, Earth and Planetary Sciences*



This discussion course will explore recent discoveries in mineral physics related to the evolution, structure, and composition of the Earth and planets. Visit the Advanced Photon Source at nearby Argonne National Laboratory, the source of brilliant X-rays used in many of the experimental breakthroughs during the past decade.

Example topics include:

- High-pressure techniques, from static diamond cells to laser shock at NIF
- Synchrotron techniques from diffraction and spectroscopy to inelastic scattering
- Hydrogen storage in high-pressure minerals and planetary water cycles
- Optical properties of planetary ices and hydrocarbon lakes on titan
- Electronic spin transition of iron in minerals, post-perovskite phase transition
- Superhard materials, or any other related topic of interest to the students

Graduate students and advanced undergraduates from all backgrounds in science or engineering are welcome.