

Thursday, October 14th, 2021

4:00 PM – 5:00 PM, Virtual

<https://asu.zoom.us/j/86960690591>

## High Pressure – a FORCE at ASU

**Professor Alexandra Navrotsky**

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### Abstract:

Pressure causes volume decrease that brings atoms closer together in solids, leading to phase transitions and changes in chemical bonding, including metallization, spin transitions, and superconductivity. Earth and planetary scientists are keenly aware of high-pressure effects in planetary interiors, but pressure offers much more general advantages in studying solid-state properties and making new materials. High pressure and high temperature are extreme conditions emphasized for many years in both experiment and theory at ASU. We have very recently obtained a \$13.7 million NSF grant to establish FORCE, the Facility for Open Research in a Compressed Environment, a user center to be built around multianvil high-pressure equipment unique to the U.S. This talk will describe FORCE and highlight some ongoing and future research of interest to the solid-state physics and chemistry community.

### Biography:

Dr. Alexandra Navrotsky's research focuses on relating atomic-level structure and bonding characteristics to macroscopic thermodynamic behavior in minerals, ceramics and other complex materials. By advancing high- and low-temperature reaction calorimetry as a foundational research tool, she has contributed to a broad spectrum of applications, from mineral thermodynamics to ceramic processing to zeolites.

Dr. Navrotsky has published more than 900 scientific papers and received many honors, including the Harry Hess Medal, the Goldschmidt Medal, the Kingery Award and the Czochralski Award. She serves on numerous advisory committees and panels in government and academia, promoting collaborative research across disciplines and institutions.

Host: Prof. David Smith

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