



NSF SEES
SYNCHROTRON EARTH AND ENVIRONMENTAL SCIENCE



Tuesday, December 10

8:30 AM - 10:00 AM – MR21A Advanced Experimental, Computational, and Analytical Approaches in Exploring Deep Planetary Interiors I

Marquis 1-2 (Marriott Marquis)

Wednesday, December 11

8:30 AM - 12:20 PM – MR31B Advanced Experimental, Computational, and Analytical Approaches in Exploring Deep Planetary Interiors II

- Poster by Katherine Armstrong – “Advances in resistively-heated diamond anvil cell capabilities at ALS 12.2.2”
- Poster by Andrew Campbell – “SEES: New Opportunities And Developments In Synchrotron Earth And Environmental Science”
- Poster by Stella Chariton – “The 13ID-D high pressure beamline upgrade: New opportunities for Earth science and beyond”
- Poster by Vitali Prakapenka – “Diamond Anvil Cell Program at GSECARS After APS-U”
- Poster by Mark Rivers – “In-situ Capabilities for Computed Microtomography at SEES Facilities at the APS”
- Poster by Yanbin Wang – “Characterizing Albite Melt under Pressure: “Quasi-Simultaneous” Density, Tomography, and Structure Measurements”
- Poster by Maksim Yakovlev – “Reconstruction Rectification and Gas Volume Segmentation for Tomographic Datasets of Laboratory Simulated Degassing-Induced Volcanic Eruptions”
- Poster by Dongzhou Zhang – “Experimental determination of the interatomic force constant in earth and planetary materials”

Hall B-C (Poster Hall) (Convention Center)

Thursday, December 12

8:30 AM - 12:20 PM – V41D Planetary Habitability and the Role of Fluids, Melts, and Volatiles in the Evolution of Terrestrial and Extraterrestrial Planetary Systems III

- Poster by Young Jay Ryu – “Pressure-induced Structural Modification in Framework Aluminosilicate – Comparative Spectroscopic Analysis of NaAlSi₃O₈ and NaAlSi₂O₆ Glasses”

Hall B-C (Poster Hall) (Convention Center)

Date	Time	Presenter	Type	Title	Location
Mon 12/9	8:30 AM - 12:20 PM	Samantha Rosenfeld	Poster	Measuring the Viscosities of Silicate Melts	Hall B-C
		Xinyue Zhang	Poster	Phase transitions of AF2 difluorides MgF ₂ , CaF ₂ , and BaF ₂ at high pressures and temperatures	
	11:07 AM - 11:17 AM	Tommaso Mandolini	Talk	Porosity and Permeability During Slow Faulting under High Pore Fluid Pressure	207 B
	1:40 PM - 5:30 PM	Allison Pease	Poster	Generating anisotropy in planetary cores through the deformation of iron nitrides and iron carbides	Hall B-C
		Cijin Zhou	Poster	Melting Investigation of Fe _{0.8} Ni _{0.1} Si _{0.1} at Earth's Core conditions with Synchrotron Mössbauer Spectroscopy and X-Ray Diffraction	
Tue 12/10	9:37 AM - 9:48 AM	Taehyun Kim	Talk	Understanding the ultralow velocity zones at the Earth's core-mantle boundary through synchrotron experiments	Marquis 1-2
	9:46 AM - 10:00 AM	Andrew Cross	Talk	Phase transformations, transient weakening, and the fate of subducted oceanic lithosphere	202 A
	1:40 PM - 5:30 PM	Shanece Esdaille	Poster	Stability of hydrous Ferric oxide up to core-mantle-boundary conditions	Hall B-C
		Simon Hunt	Poster	Twin domain switching in neighborite (NaMgF ₃) during oscillating deformation: potential implications for intrinsic seismic attenuation of the lower mantle	
		Wenhao Su	Poster	In Situ Deformation of Antigorite and Olivine 2-phase Mixtures and Its Implications for Seismic Anisotropy in the Mantle Wedge	
Wed 12/11	8:30 AM - 12:20 PM	Prabhav Borate	Poster	Understanding the acoustic signatures of slip through simultaneous synchrotron X-ray imaging and ultrasonic measurements.	Hall B-C
		Xinguo Hong	Poster	HP-XAFS and Local Structural Research at High Pressure	
		Taehyun Kim	Poster	Iron metal formation from silicate melts at 55–75 GPa and 4000–6000 K	
		Masamichi Noda	Poster	Elasticity of β -Mg ₂ SiO ₄ containing 1.19 wt.% of H ₂ O to 10 GPa and 600 K by Ultrasonic Interferometry with synchrotron X-radiation	
		Allison Pease	Poster	Raman Scattering of Rhenium Under Extreme Pressures for Secondary Pressure Calibration	
		Guoyin Shen	Poster	Constraints on the initial slope of ruby gauge	
		Stanislav Sinogeikin	Poster	Advanced Technical Solutions for Studying Minerals and Planetary Materials at Cryogenic Temperatures and High Pressures	
	9:25 AM - 9:36 AM	Evan Bozek	Talk	Understanding linear and nonlinear ultrasonic signatures of fractured rock subject to quasi-static and dynamic loading through coupled in-situ synchrotron X-ray imaging	Marquis 1-2
Thu 12/12	8:30 AM - 12:20 PM	Thomas Breithaupt	Poster	Microstructural Signatures of the Coesite-Quartz Transformation: New Insights from High-Pressure Experiments and EBSD	Hall B-C
		Sean Shieh	Poster	Unusual Weak Strength of Reidite Under High Pressure	
		Mauritz van Zyl	Poster	Iron Nitride in Deep Earth Conditions	
Fri 12/13	8:30 AM - 12:20 PM	Vincent Noel	Poster	Probing colloid generation and behavior at mechanism-scale to predict water quality at the mountain watershed-scale: challenges, developments, and perspectives	Hall B-C
		Madeline Paoletti	Poster	Organic preservation of microfossils in the Umbria-Marche, Italy, demonstrates early diagenetic anoxic redox conditions independent of the OAE2 Bonarelli Level	
	11:07 AM - 11:17 AM	Lawrence Anovitz	Talk	The Role of Annealing and Grain Boundary Controls on The Mechanical Properties of Limestones, Marbles and Novaculite	145 A