

Surface characterization of mineral samples relevant for particle detection

Friday, April 17, 2026 11:00 AM (30 minutes)

This talk will present results from several techniques utilized for surface characterization of mineral samples relevant for particle detection as part of the NSF Growing Convergence Research group. Atomic force microscopy was utilized to measure the stiffness and strain of quartz and olivine samples with tracks created by 15 MeV Au⁵⁺ ions. We utilized non-irradiated reference samples from the same minerals to identify and characterize track/impact morphology. We measured the diffusivity of the diffraction pattern using electron backscatter diffraction (EBSD) in these samples as a function of position, which is expected to reveal track defects in the crystal structure of the samples. We also utilized EBSD to characterize the crystal orientation on olivine samples for preliminary measurements at the Advanced Photon Source Center for NanoMaterials (APS/CNM) that will support an upcoming full proposal to the APS/CNM to characterize tracks with high throughput.

Do you plan to give the talk in person?

Yes

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