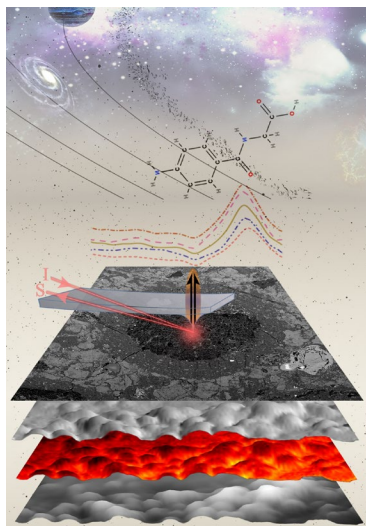


CHEMICAL CHARACTERIZATION OF METEORITES TO UNDERSTAND EARLY SOLAR SYSTEM PROCESSES

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November 21, 7:30pm, Earth & Space Sciences 001

Meteorites are fragments of asteroids that record the chemical and physical conditions of the early solar system. By studying their chemical composition, we can learn a lot about how the first solids formed, how asteroids evolved, and how the building blocks for planets and possibly life on Earth originated. Additionally, samples collected directly from the surface of asteroids enable direct chemical and mineralogical investigations of pristine solar system materials, and also provide ground truth for interpreting the chemical composition and history meteorites. We use spectroscopic and microscopic methods to investigate chemical composition of carbonaceous chondrites and returned asteroid samples to better understand their formation and evolution in space. In this talk, I will present what we've learned from their laboratory investigations and demonstrate how state-of-the-art analytical techniques allow us to reconstruct the conditions and chemical pathways that transformed cosmic dust into the diverse materials we find in meteorites today.



Mehmet is a Research Associate Professor at the Department of Geosciences at Stony Brook University. He obtained a MS degree from Florida State University, and a PhD from University of Florida, both in physics. Mehmet was a postdoctoral researcher at SBU between 2015-2016. He participated in two meteorite search and recovery expeditions in Antarctica. He is interested in chemical characterization of meteorites and returned asteroid samples using high resolution methods. The asteroid 2001OO103 was named after him by the International Astronomical Union (34713 Yesiltas).