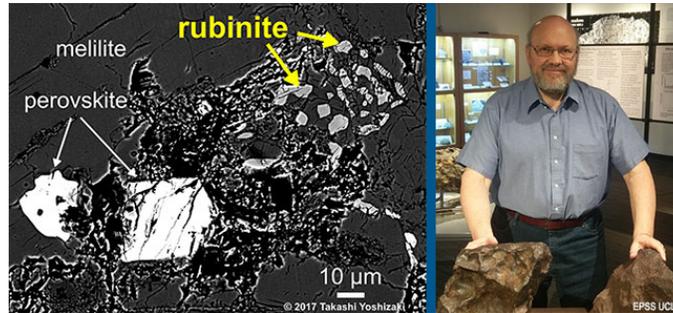


MSSC ZOOM MEETING

Friday, September 10, 2021

7:30 pm

The Origin of Chondrules



Dr. Alan E. Rubin: A pioneering Cosmochemist at University of California, Los Angeles.

Dr. Alan Rubin / Institute of Geophysics and Planetary Physics; Department of Earth, Planetary, and Space Sciences; University of California Los Angeles.

Chondrules are the most abundant components of chondritic meteorites, constituting up to 75% of ordinary chondrites (the most meteorites observed to fall). They come in a variety of textures – from radiating pyroxene pinwheels to porphyritic bodies rich in olivine. Some chondrules are under a micrometer in size; the largest are the size of a golf ball. They are among the oldest objects formed in the Solar System, forged in an epoch before our planet was born. For more than 200 years, scientists have been debating the origin of these ubiquitous igneous spherules. Recent work detailing the petrologic and isotopic characteristics of chondrules, along with laboratory experiments reproducing chondrule textures, have allowed important constraints to be placed on the formation of these objects. Many chondrules preserve evidence indicating they were melted more than once; some may have been melted many times. Chondrules in some chondrite groups hail from dusty regions of the solar nebula; others come from regions with little ambient dust. In contrast, chondrule-like objects in lunar rocks formed by impact melting by micrometeorite impacts into the lunar regolith.

Alan Rubin has a B.S. in Astronomy (University of Illinois, 1974), an M.S. in Geological Sciences (University of Illinois at Chicago, 1979) and a Ph.D. in Geology (University of New Mexico, 1982). He was a post-doc at the Smithsonian for a year (1982-1983) and has been at UCLA since 1983. He is currently a Research Geochemist and an Adjunct Professor in the Department of Earth, Planetary and Space Sciences. He has published about 190 research papers

on meteorites in peer-reviewed journals and about 50 popular articles on meteorites, asteroids, astronomy, and space science; seven of these won awards for popular science writing. His popular science book "Disturbing the Solar System" was published by Princeton University Press in 2004. In honor of his research contributions, asteroid 6227 was named Alanrubin in 2002.