

Title: Chondrites and the early solar system

Abstract:

Precursors of all solar system objects such as meteoroids, asteroids, comets, proto-planets, and planetary satellites were formed through physical and chemical processing (e.g. condensation-evaporation, variable heating, mixing, etc.) of nebular dust and gas of about 0.1% solar mass. To understand the role of initial chemical and isotopic heterogeneity and subsequent physicochemical processing of dust, gas and planetary precursors in the solar nebula, chemical and isotopic variations in the components of undifferentiated meteorites such as calcium-aluminum-rich inclusions, chondrules, matrix and Fe-Ni metal can be used as tracers. Here, I discuss examples of chondrules and separated components from unequilibrated chondrites to explore the origin of isotopic heterogeneities and processing of mm to cm scale objects within the first few million years of the solar system evolution.