

Timescales of events in the early solar system: A perspective from chronological studies of achondrite meteorites

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In recent years, a number of high-resolution chronometers (such as the Pb-Pb chronometer and the short-lived Al-Mg and Mn-Cr chronometers) have been applied towards better understanding the timescales of the earliest events in the Solar System. Moreover, many new types of achondritic meteorites have been recovered, which greatly broadens the diversity of such meteorites and the planetesimals sampled by them. As such, high resolution chronological investigations of these achondrites are providing new insights into the conditions and timescales of the earliest differentiation processes occurring on numerous parent bodies in the early Solar System. In this talk, I will provide an overview of recent chronological constraints on a variety of achondrites that have been obtained in my laboratory at ASU, as well as in other laboratories. I will also discuss the implications for the origin and distribution of extinct radionuclides in the solar nebula, as well as the accretionary processes responsible for the formation of the parent bodies of these achondrites.