

Crystallographic Characterization of Presolar SiC Aggregates

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abstract Presolar grains have been the subject of intense study since their initial discovery. Much of this work has focused on the characteristic isotopic anomalies indicative of their parent star and formation processes. While the crystallography of presolar grains has been examined as a secondary feature in larger presolar grains, nanometre-scale subgrains of presolar aggregates have generally been ignored from a crystallographic perspective. Focusing on SiC grains, a byproduct of the He-burning phase of asymptotic giant branch (AGB) stars we have tested the underlying assumption of the cryptocrystallinity of these aggregate grains as a function of their complex lobate textures to examine the implications of the formation of these grains as it pertains to parent stars, stellar processes, grain processing in the interstellar medium, and accretion in the early protoplanetary disk.

Personal Statement: I am a first year (entering second year) doctoral student at the University of Hawai'i at Mānoa. I have numerous mineral physics projects currently ongoing working on high pressure minerals, planetary surface processes, and meteorites. The majority of projects I'm working on are XRD-based, so I would greatly appreciate an opportunity to learn more about the cutting edge of my field in addition to present some of my own meteorite findings.