

## Grain Formation around Stars

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The detailed isotopic and elemental analyses of individual micron-sized dust grains in the primitive meteorites have led to the discovery of presolar grains from their isotopic anomalies. Presolar grains provide invaluable information on the formation processes of grains and their evolution from circumstellar dust to solid bodies in the primordial solar nebula.

It is considered from their isotopic compositions that one of the plausible formation sites of presolar grains is in the circumstellar envelopes of evolved stars (such as AGB star, supernova, etc.). In addition, the characteristics of presolar grains such as their size and structure provide a clue to explore the physical conditions for their formation sites. For instance, the composition, radius, and core-mantle structure of condensed grains reflect the density and cooling time scale of the vapors.

In this talk, formation processes of dust grains in the circumstellar envelopes of evolved stars are reviewed. We show how the constraints on the physical conditions are explored by the comparing the grain characteristics expected from the non-equilibrium condensation theory and the observed ones. Discussion is given on the problems of present condensation theory, and suggestions are given the future astronomical observations by comparing observed properties of dust grains around evolved stars.