A New Chondrule Synthesis by Acoustic Levitation

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Nucleation in microgravity is reduced by the order of four and thus very high supercooled melt is stable. Forsterite chondrule was for the first time synthesized by acoustic levitation method, in which about 1000 degC of supercooling was achieved followed by the rapid crystallization on the surface of the melt in 0.1s. This crystallization process led the increase of the surface temperate up to the melting temperature due to the rapid release of latent heat. The rim and the internal texture was found to be formed only in such thermal conditions.