In-situ observation of rapid solidification of Enstatite melts by using aero-acoustic levitation

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Rapid solidification of Enstatite ($MgSiO_3$) was carried out to reproduce radial pyroxene texture chondrule in situ. In gravity, all samples were crystallized and had radial pyroxene texture. But in microgravity experiments using a parabolic flight crystals included glass and in containerless solidification experiments using aero-acoustic levitation only glass was formed. These results indicate the necessity for natural radial pyroxene to have a heterogeneous nucleation center.