

Sound velocity measurements on bridgmanite at lower mantle pressures

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The chemical composition of the lower mantle which occupies more than half of the Earth's volume is of great importance to understand the dynamics and the formation process of the Earth. The sound velocity of bridgmanite at high pressures reveals the mineralogy model and the chemical composition of the lower mantle, comparing with data from seismic observation. Here, we measured the longitudinal wave velocity of iron (Fe) and aluminum (Al) bearing bridgmanite at lower mantle pressures by a new method via a combination of the femtosecond pulse laser pump-probe technique with a DAC (Wakamatsu et al., 2018). In this presentation, we will compare our data of sound velocity in bridgmanite with those reported in previous studies (Murakami et al., 2012; Chantel et al., 2012; Kurnosov et al., 2017) and discuss the mineralogy model and the chemical composition of the Earth's lower mantle.

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