

MgSiO₃ Post-perovskite at D'' Conditions

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The thermoelastic properties of the newly found post-perovskite polymorph of MgSiO₃, more stable than the Pbnm-perovskite phase at conditions close to those expected in Earth's D'' region, has been investigated by first-principles and contrasted with those of the perovskite phase. We predict the major seismic trends such as velocity discontinuities, ratios of velocities and density anomalies, and anisotropy in aggregates with preferred orientation that should occur in the presence of this phase change. Consequences of this model mineralogy for the D'' region will be discussed.

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