

A Perovskitic Lower Mantle Inferred from High-pressure, High-temperature Sound Velocity Data by Motohiko Murakami, Yasuo Ohishi, Naohisa Hirao and Kei Hirose

The above paper published in *Nature*, v.485, pp.90-94, 03 May 2012, the authors determine the shear-wave velocities for silicate perovskite and ferropericlasite under the pressure and temperature conditions of the deep lower mantle using Brillouin scattering spectroscopy. The mineralogical

model that provides the best fit to a global seismic velocity profile indicates that perovskite constitutes more than 93 per cent by volume of the lower mantle, which is a much higher proportion than that predicted by the conventional peridotitic mantle model. It suggests that the lower mantle is

enriched in silicon relative to the upper mantle, which is consistent with the chondritic Earth model. Such chemical stratification implies layered-mantle convection with limited mass transport between the upper and the lower mantle.