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Elasticity of Fe- and Al-bearing and —free MgSiO₃-perovskite¹ GAURAV SHUKLA, School of Physics and Astronomy, University of Minnesota, ZHONGQING WU, Department of Earth and Space Sciences, University of Science and Technology of China, Hefei, Anhui, China, RENATA WENTZCOVITCH, Department of Chemical Engineering and Materials Science, University of Minnesota — We present a thorough analysis of the elastic properties of iron- and aluminumbearing and —free MgSiO₃-perovskite. Results from different first principles methods are compared to experimental data available and results for aggregate elastic moduli and velocities are analyzed at lower mantle conditions. Velocity heterogeneities produced by temperature variations and variation of aluminum and iron content are carefully examined and contrasted. This analysis is essential for improving understanding of the constitution of Earth's lower mantle.

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