Abstract Submitted for the MAR08 Meeting of The American Physical Society

Elasticity of ferropericlase at Earth's lower mantle conditions RENATA WENTZCOVITCH, JOAO JUSTO, ZHONGQING WU, CESAR DA SILVA, U of MInnesota — The thermoelastic properties of ferropericlase $\mathrm{Mg}_{1-x}\mathrm{Fe}_x\mathrm{O}$ (x = 0.1875) across the iron high-to-low spin crossover at lower mantle conditions have been investigated by combining first principles calculations with a thermodynamics model of this system. At room temperature the transition is somewhat sharp and the effect on the bulk modulus is quite dramatic. Along a typical geotherm the transition should occur across most of the lower mantle with a noticeable bulk modulus reduction in the mid lower mantle. This transition should also alter noticeably the magnitude of velocity heterogeneities caused by lateral temperature changes.

¹Resarch supported by NSF/EAR NSF/ITR and ITAMIT

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Date submitted: 27 Nov 2007 Electronic form version 1.4