

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Second harmonic generation and high pressure ferroelectricity in $\text{PbTiO}_3(\text{II})$ ¹ MUHTAR AHART, ALEXANDER F. GONCHAROV, MADDURY SOMAYAZULU, RUSSELL J. HEMLEY, Geophysical Laboratory, Carnegie Institution of Washington — We employed the Raman scattering, x-ray diffraction, and second harmonic generation (SHG) experiments to investigate the behavior of PbTiO_3 under pressure up to 100 GPa at 300 K. The experimental results reveal that lead titanate undergoes a second order phase transition from a tetragonal to a cubic at 12 GPa and continuously to a non-cubic structure at 30 GPa. The integral intensity of SHG in the material decreases monotonically with pressure below 12 GPa, and does not depend on pressure above 12 GPa. The results provide no-evidence for high pressure ferroelectricity in PbTiO_3 at high pressure and room temperature.

¹This work is supported by the Carnegie/Department of Energy Alliance Center (CDAC) (DF-FC03N00144).

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Date submitted: 18 Nov 2010

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