

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Anharmonicity and bonding electrons in silicon under high pressures GUOYIN SHEN, DAIJO IKUTA, HPCAT, Carnegie Institution of Washington — Electron density distributions have been measured for silicon at high pressures by single crystal diffraction using a diamond anvil cell. An abrupt change in charge density distribution is observed at 10.1 GPa, a pressure close to a phase transition from diamond structure to beta-tin structure at 12.5 GPa. Our results show a strong anharmonicity effect in silicon in a pressure range of 2.5 GPa before the phase transition to beta-tin.

Guoyin Shen
HPCAT, Carnegie Institution of Washington

Date submitted: 11 Nov 2011

Electronic form version 1.4