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High Pressure Studies of PETN up to 74 GPa MICHAEL PRAVICA, University of Nevada, Las Vegas (UNLV) and the High Pressure Science and Engineering Center (HiPSEC), KRYSTYNA LAPINSKA-KALITA, HUBERTUS GIEFERS, YONGRONG SHEN, UNLV and HiPSEC, MALCOLM NICOL, UNLV and HiPSEC, MADDURY SOMAYAZULU, MICHAEL HU, Carnegie Geophysical Laboratory and Advanced Photon Source (HPCAT) — We have studied the popular high explosive PETN (Pentaerythritol Tetranitrate) using X-ray powder diffraction (up to 74 GPa) and X-ray energy-dispersive diffraction (up to 30 GPa), X-ray Raman Spectroscopy (up to 20 GPa), and Raman Spectroscopy (up to 50 GPa). All studies were carried out at room temperature. The X-ray studies were carried out at the HP-CAT beamline (16 ID-B, 16 BM-B and 16 ID-D) at the Advanced photon source (APS) at Argonne National Laboratory. We present evidence for two new phases of PETN above 5 GPa and above 10 GPa including an equation of state of the material.

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