Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

An Infrared Study of Secondary Explosives under High Pressure.[1]
BRIAN YULGA, MICHAEL PRAVICA, UNLV - Physics, ZHENXIAN LIU, NSLS, Carnegie Institute of Washinton, OLIVER TSCHAUNER, MALCOLM NICOL, UNLV - Physics — We report synchrotron FTIR and far infrared measurements on PETN, RDX, HMX and TATB at ambient temperature and high pressure, using various media for pressurization of the samples. In all cases, we have carefully studied any phase transitions in the 0 - 15GPa pressure range and have cycled pressures to interrogate sample survivability and reproducibility of the phase sequences. For PETN, we used differing pressurizing media (Ar and KBr) and have found that the onset of a prior-reported phase transition around 5GPa varies with the different media, portending the importance of sheer stress in inducing some or all of this phase transitions.

[1]We gratefully acknowledge support from the UNLV/ARL SOldier FERST program as well as partial support from the DOD MURI program. We gratefully acknowledge the support from the DOE Cooperative Agreement No. DE-FC08-01NV14049 with UNLV.

Brian Yulga
UNLV - Physics

Date submitted: 20 Nov 2006 Electronic form version 1.4