

Abstract Submitted  
for the SHOCK13 Meeting of  
The American Physical Society

**Raman scattering analysis of the structural phase transformations of III-V semiconductors induced by mechanical impact**<sup>1</sup> PAULO PIZANI<sup>2</sup>, Universidade Federal de São Carlos, Departamento de Física, RENATO JASINEVICIUS<sup>3</sup>, Universidade de São Paulo, Escola de Engenharia de São Carlos, NON HYDROSTATIC PRESSURES COLLABORATION — In the present work we report a Raman scattering study on the structural phase transitions of indium antimonide submitted to high non-hydrostatic pressure applied by mechanical impact, which induces several transformations, leading to very rich Raman spectra. We are able to observe the normal disordered zinc blende structure with a Raman spectrum displaying two broadened peaks at 180 and 190  $\text{cm}^2$ , an amorphous phase with a Raman spectrum displaying only a broad band centered at about 175  $\text{cm}^2$ , the optical band, that reflects the vibrational density of optical states, the wurtzite structure with Raman peaks at 145, 175 and 180  $\text{cm}^2$  and a completely new and intense Raman spectrum presenting fourteen lines. Similar results for GaAs and GaSb were also obtained.

<sup>1</sup>Acknowledgements to FAPESP and CNPq funding agencies.

<sup>2</sup>CP 676, 13565-905 São Carlos, SP

<sup>3</sup>Departamento de Engenharia Mecânica, CP 359, 13566-590 São Carlos, SP

Paulo Pizani  
Universidade Federal de São Carlos, Departamento de Física

Date submitted: 12 Mar 2013

Electronic form version 1.4