ESRF	Structural studies of InN under high hydrostatic pressures	**Experiment number**: HS 3007
Beamline: ID27	**Date of experiment**: from: 12/07/2006 to: 15/07/2006	**Date of report**: 24/08/2006
Shifts: 9	**Local contact(s)**: W. Crichton	*Received at ESRF:*

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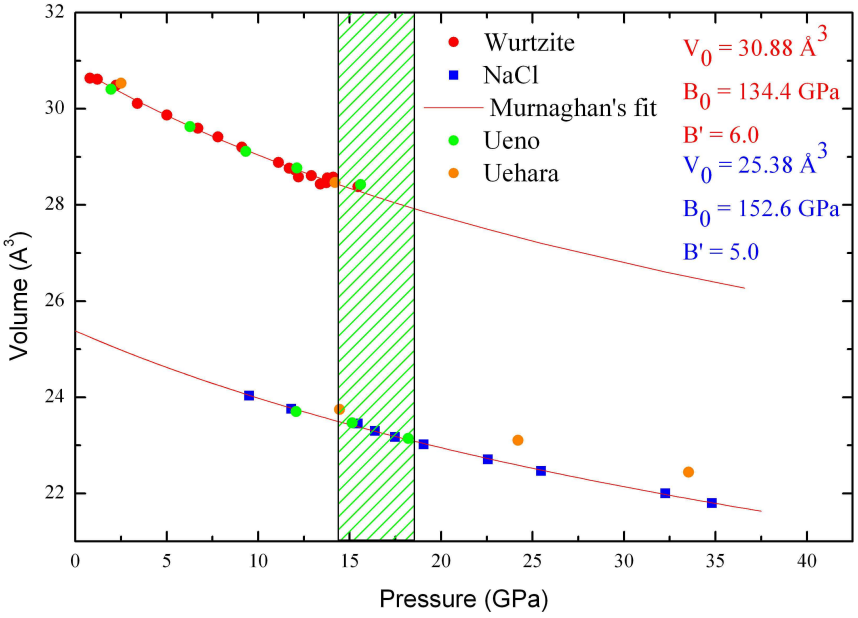
Report:

Indium nitride belongs to the family of III-V nitrides, extremely important for the applications. InN, with a gap probably around 0.6 eV, offers new possibilities for telecommunications and transistors.

This compound is grown only by epitaxy on various substrates, and the lattice mismatch produces large stresses at the interface. These situation enable an easy possibility to scratch single crystals from the sapphire substrate.

In order to clarify the phase transformation occuring around 17 GPa, we measured x-ray diffraction in the angular dispersive mode (λ = 0.3738 Å, detector, CCD) in a diamond anvil cell. We used neon as a pressure transmitting medium, and measured the pressure using the ruby scale. Three samples were studied up to 38 GPa.

The main result is presented in Fig. 1, where our results are compared with preceding results.[1, 2] We see that there is a good agreement between the various sets of measurements, although there is a small difference in the bulk modulus and its pressure derivative. The first order phase transition to a NaCl type



structure is confirmed, which shows that the explanation of the enormous Raman signal intensity in the phase where first order scattering is forbidden has no direct structural origin.

Now, *ab initio* calculations are under way in order to understand the very large intensity of the Raman signal observed in the NaCl phase stability range.

[1] M. Ueno, M. Yoshida, A. Onodera, O. Shimomura, K. Takemura, Phys. Rev. **B 49**, 14 (1994)
[2] S. Uehara, T. Masamoto, A. Onodera, M. Ueno, O. Shimomura, K. Takemura, J. Phys. Chem. Sol. **58**, 2093 (1997)