

tering studies on single crystals of Li and Ba. It was found that under carefully chosen experimental conditions almost hydrostatic loading of Li and Ba up to about 7 GPa is possible. The present contribution describes the experimental methods which have allowed us to overcome the technical difficulties and reports first results of elastic and inelastic neutron scattering on Li and Ba.

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P-NESY7: Neutron Holography of Metal Hydrogen Systems

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Neutron holography constitutes a novel technique to obtain structural information on an atomic scale. It is based on the recording of the interference of neutron waves which are coherently scattered by atomic nuclei located on a crystal lattice with a suitable reference wave. Neutron holograms can be recorded using two complementary schemes, one of which is discussed in detail. In this approach, a point-like source of spherical neutron waves is required inside a single crystal which can be realized by making use of the large incoherent neutron scattering cross section of hydrogen nuclei, i.e. protons. When a sample containing substantial amounts of hydrogen is placed in a monochromatic beam of slow neutrons the protons will emit spherical neutron waves as a result of incoherent scattering. The interference between the undisturbed spherical wave field and that part of the wave which is scattered by neighboring atoms is recorded over a wide range of different orientations of the sample with respect to the detector thereby producing a hologram. We demonstrate the feasibility of the method by performing a holographic reconstruction of the positions of the metal atoms around protons on octahedral interstitial sites in a palladium-hydrogen single crystal.

P-NESY8: A new setup for synchrotron radiation induced TXRF at HASYLAB, beamline L for ultra trace analysis with

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As the outstanding features of synchrotron radiation such as high flux, continuous energy spectrum, natural collimation, linear polarization are the perfect prerequisites for TXRF Syn-