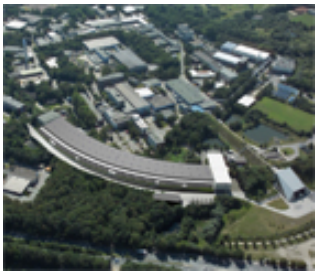

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X-ray diffraction of weak scattering materials at megabar pressures

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X-ray diffraction of weak scattering materials at megabar pressures

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We will present recent results on X-ray diffraction in combination with optical and electrical studies of light elements: sodium [1], nitrogen [2] [3], and compounds with hydrogen and nitrogen: SiH4 [4], HN3, N2H4, LiN3 and others at pressures up to about 200 GPa.
X-ray diffraction experiment with weak scaterers at multimegabar pressures is challenging, therefore it requires a special techniques which we are constantly developing. In particular, we use cBN/epoxy mixture as a gasket material [5]. It produces only a weak background and allows us to work with very small <10 ⊠m sample required for multimegabar range. In addition, this gasket provides an enhanced thickness of the sample. We further significantly increased the sample volume in ⊠5 times with toroidal shaped diamond anvils [6].

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