

## **HREM investigation of latent tracks in GeS and mica induced by high energy ions**

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Observations of heavy ion latent tracks in layered materials were carried out with a 400 kV high resolution electron microscope as well as with conventional 100 and 200 kV microscopes. The materials were irradiated normal to the cleavage plane at the UNILAC-accelerator at GSI Darmstadt with ions up to several MeV/u. High-resolution images of latent tracks in muscovite mica and in GeS single crystals are presented in this paper. The micrographs show that the track core represents a disordered zone. Depending on the diffraction conditions in the surroundings of the tracks, strain contrast centres are visible. The boundary between the amorphous track core and the intact crystal lattice is well defined. The cross sections of the tracks in mica have a nearly circular shape. In contrast to that they are elliptical in GeS and are well oriented with respect to the crystal lattice. The sharp amorphous-crystalline transition allows the exact measurement of the track dimensions. The values resulting for the track diameters show a large variation in size depending on the ion sort. The tracks produced by heavy ions have more than twice the diameter of those produced by light ions. Relations between the track size and the energy loss for different ions are given.