

## **High-resolution microscopy of latent tracks induced by high-energy heavy ions**

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On its way through a solid, an energetic heavy ion deposits an enormous amount of kinetic energy per unit path length during an extremely short time interval. The energy transfer induces very fast primary processes which can cause, depending on the specific solid properties, damages ranging from point defects to a total amorphization in the case of crystalline material within a long, thin cylinder-shaped volume along the ion trajectory. Details of size, shape, and morphology of the ion tracks, though representing the final stage of the damage creation, store indirect information about the not simultaneously observable very rapid primary processes. We present images and additional information on the properties of ion tracks in germanium monosulfide, highly oriented pyrolytic graphite, and muscovite mica achieved with transmission electron-, scanning tunnelling-, and scanning force-microscopy.