

Seminar im Rahmen des GRK 2078

Referent: **Oliver Focke**
Universität Bremen

Datum: Fr. 23.02.2018
Uhrzeit: 10:30 Uhr

Ort: Geb. 10.23, 3. OG (R 308.1 – KM-Seminarraum)

Titel: **3 D X-ray microscopy**

Abstrakt

3 D X-ray microscopy provides non-destructive access to the internal microstructure and composition of materials. In contrast to conventional X-CT (only geometric magnification), the X-ray microscope Versa 520 offers a two-stage magnification. The additional optical magnification (Fig. 1) enables high resolution at large source-sample distances and therefore provides a large flexible working distance while maintaining submicron resolution without the need to downsize the specimen (Fig. 2). This allows high-resolution for large samples as well as for in-situ experiments. The latter can be performed with the 5kN in-situ tensile stage (Deben CT5000).

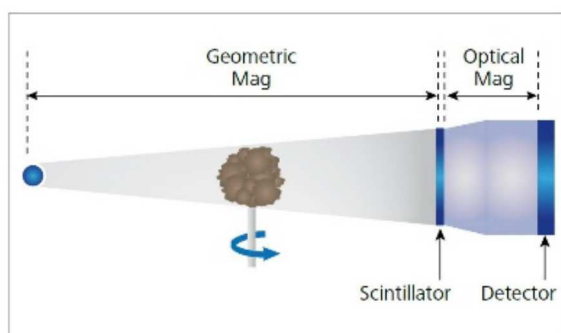


Fig. 1: Two-stage Magnification

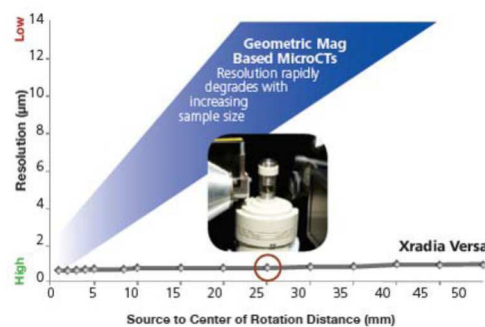


Fig. 2: Constant high resolution over large distance

Additional unique features of the XRM are laboratory diffraction contrast tomography (DCT) for the mapping of grain orientations in polycrystalline materials even without grain contrast and propagation phase contrast for the visualization of low absorbing or low contrast materials: low atomic number (low Z) materials, soft tissue, polymers, fossilized organisms encased in amber, and other materials of low contrast. This enables the separation of carbon fibres from its polymer matrix and consequently the analyses of fibre orientation (Fig. 3).

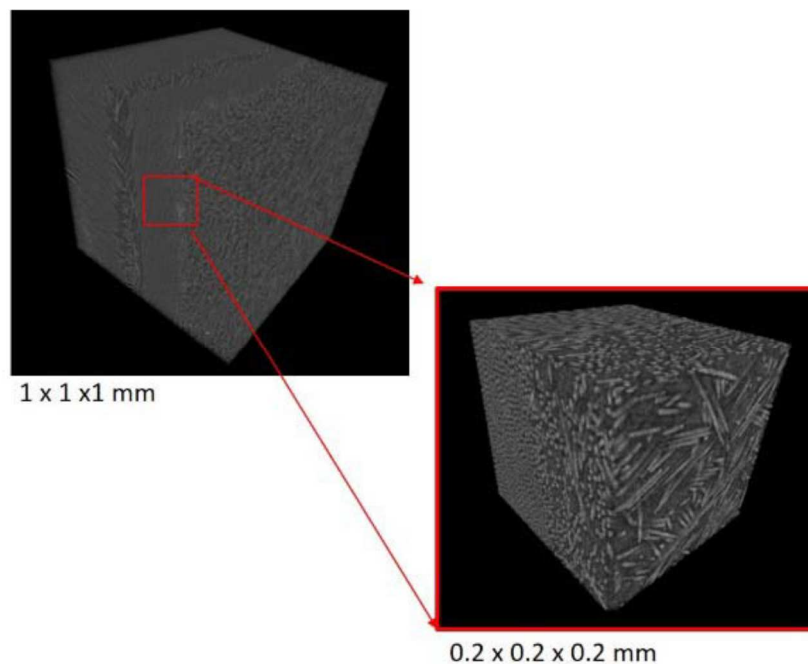


Fig. 3: Section of a short fibre (length 200 μm x diameter 7 μm) injection moulded part. The unique combination of high resolution and phase contrast enables the 3D determination of single fibre orientation

Alle Interessenten sind herzlich eingeladen.

Prof. Dr.-Ing. Thomas Böhlke
(Sprecher des GRK 2078)