

**Lab Course BEMP „High-resolution Micro-Computed Tomography“ /  
Fortgeschrittenenpraktikum BEMP “Hochauflösende Mikro-Computertomographie“**

Computed tomography (CT) is a non-destructive X-ray imaging technique mainly known from medical diagnostics, but also widely used in life science, non-destructive testing, and material science. Tomography in our case means cutting virtually through a sample.

This course will give you insights into the state-of-the-art high-resolution microCT. In a first step, you will get to know the components of a tomography setup and the principles of X-ray imaging. You will perform first computed tomography measurements and apply basic reconstruction algorithms to get the three-dimensional distribution of the object's attenuation. Once the basics of computed tomography are clear, you will learn to operate a modern microCT machine to achieve optimum resolution and contrast for different types of samples. Finally, you will learn the principles of one of the advanced methods – e.g. phase-contrast imaging or dual-energy approach – using the microCT instrument and applying corresponding reconstruction and data analysis algorithms.