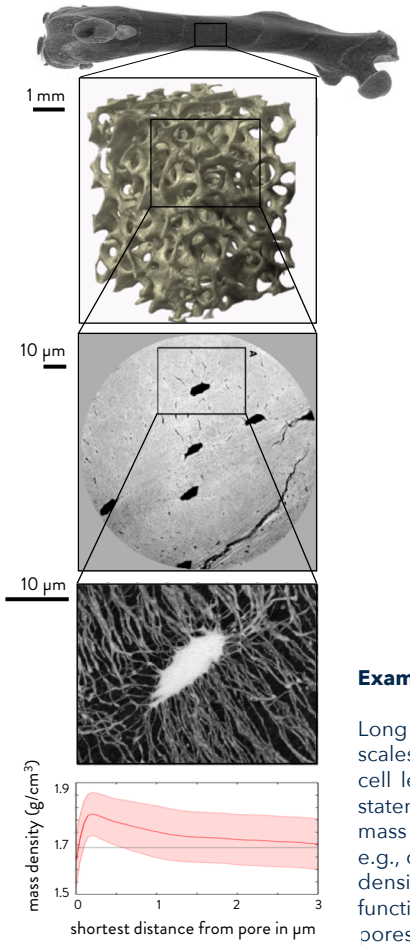
ADVANCED 3D IMAGING USING SYNCHROTRON µCT

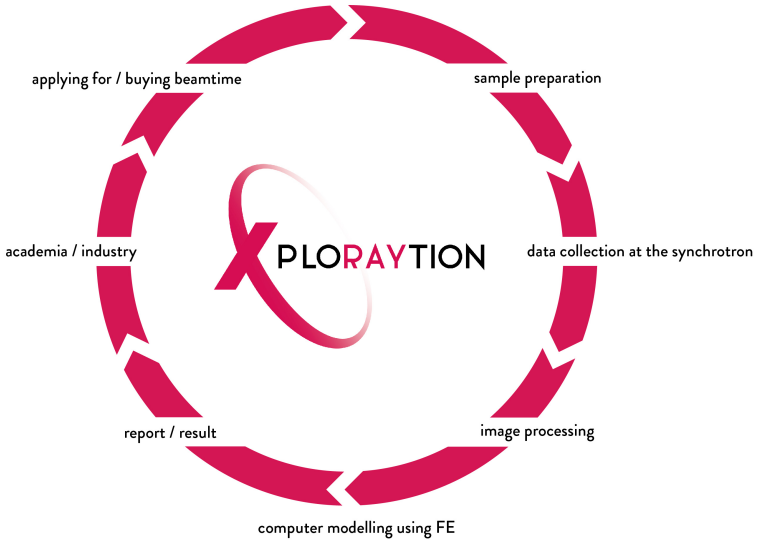
HIGH RESOLUTION



Example 1:

Long bone at different length scales down to the individual cell level. SR phase CT allows statements about structure and mass density simultaneously, e.g., determination of the mass density distribution as a function of the distance to pores included in the sample.

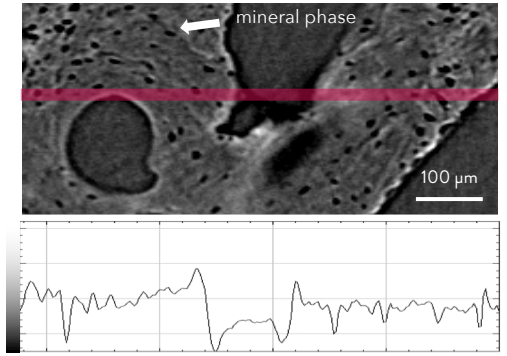
WE ASSIST YOU WITH



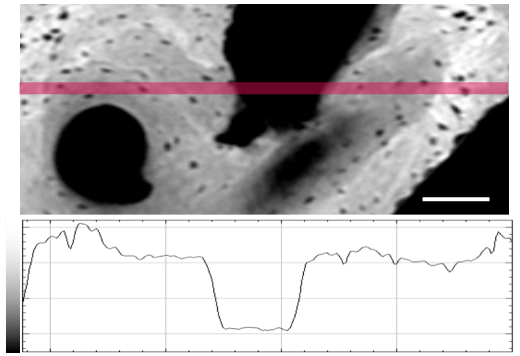
Example 2:

Improved discrimination of bone regions with only slightly varing densities using phase contrast. The signal-to-noise ratio is drastically improved and regions of different mass density within the mineral phase can be distinguished.

HIGH SENSITIVITY



absorption contrast



phase contrast

3D SYNCHROTRON CT

µCT (phase and absorption contrast*)
energy range: 10 – 250 keV (monochromatic)
field-of-view: 0.1 – 100 mm
pixel size: 0.2 – 30 µm

nanoCT (phase contrast*)
energy: 17 or 34 keV (monochromatic)
field-of-view: 100 µm at highest resolution
pixel size: > 50nm

*phase contrast imaging enables an improved material-phase DISCRIMINATION for materials with similar density

ADVANTAGES OF SYNCHROTRON CT

- highly intense xray-source (10 ^{12}photons/s)
- high resolution
- tunable energy
- coherence
- ultra fast aquisition: < 1s
- phase contrast

ANALYSIS OF

- range of samples and environments (humidity, gaz, traction, compression, bending, shearing…)
- 3D mass density distribution
- 3D structures (e.g., pore characterisation, size distributions)
- advanced post processing

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