# Biomedical phase imaging using a grating interferometer

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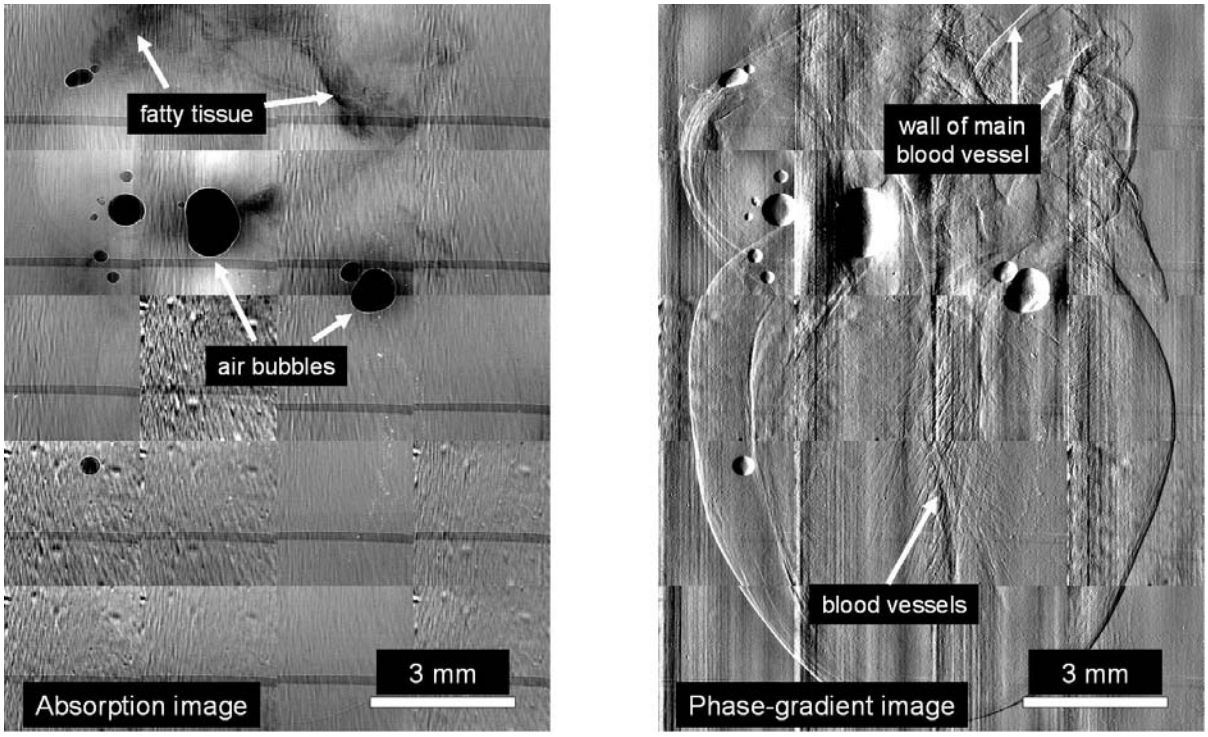
The imaging of biological or medical tissue samples in the hard x-ray range is problematic due to the low absorption coefficient of light elements. We have recently developed a grating interferometer that allows us to visualize the phase shift gradient, which can greatly increases the contrast of such samples. As example the figure below shows x-ray images of an animal organ which was put in a container with water. We have used synchrotron radiation of 17 – 18 keV photon energy for imaging. Due to the limited size of the synchrotron beam of 3mm, the image has been stitched together from 20 sub-frames. In absorption contrast, only air bubbles and some fatty tissue are visible, whereas the complete organ with many details can be seen in the differential phase contrast image. We expect that the technique can be useful to reduce the dose applied in medical examinations, especially in mammography.




X-ray micrographs of a rat heart in water taken with polychromatic radiation of 17-18 keV photon energy.