

# Neutron Imaging at Paul Scherrer Institute

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At Paul Scherrer Institute neutron imaging has been used for about ten years and currently two beamlines are available for users from universities and industry.

Neutron imaging is an alternative to X-ray imaging for non-destructive testing. Due to a different attenuation mechanism neutrons often provide complementary attenuation coefficients to X-rays. For example, water is highly attenuating whereas many metals are low attenuators. This fact is often used in experiments where the users want to study the water or oil distributions in porous structures.

The principles of neutron production and imaging will be described as well as the main components of a neutron imaging beamline. More recent parts of the instrumentation at the ICON beamline are an energy selector and a setup for grating interferometry. These installations open for new applications like the study of crystalline structures and magnetic domains.

Finally some examples will be presented to show the versatility of this imaging modality. Examples are given from archeology, soil and geo-science, cultural heritage, welding, glueing, and fuel cell research.

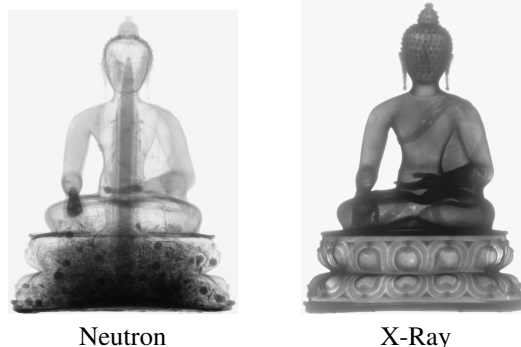


Figure 1: Buddha bronze sculpture filled with organic material imaged with neutrons and X-rays.