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Development and characterization of a neutron tomography system for the research reactor

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Neutron tomography is a very powerful technique for the non-destructive evaluation of heavy industrial components as well as for soft hydrogenous materials enclosed in heavy metals, which are usually difficult to image using X-rays. It has found a variety of applications in medicine, agriculture and other heavy industries. In our effort to use this technique for non-destructive testing, a process has begun to upgrade the neutron radiography facility from static-based film (Nitrocellulose film and Agfa Structurix D7 photographic film) neutron radiography into a dynamic neutron radiography/tomography system by using scintillation screens (ZnS(Ag)-6LiF) and a CCD-camera.

Several experiments have been performed on this experimental station to study the feasibility of neutron tomography for various applications.

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