

Application of IECF to Neutron Radiography

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It has been first demonstrated that the IECF is an useful neutron source for the neutron radiography. The Cd and Pb are used in the experiments as the testing objects. The images of them are made by the neutron imaging plate (NIP). Since the NIP is sensitive to the X ray as well as the neutron, the difference of the images identifies the image by the neutron. The arrangement of the IECF, the IP and the Pb plate for the X ray shielding is studied at the view point of a clearer imaging. The long collimator cannot be used, since it reduces the neutron flux applied to the objects. The thickness of the objects is, hence, limited in obtaining a clear image, since the neutrons cannot be sufficiently collimated. The limitation never discourages the application of the IECF to the radiography, since it is very compact and inexpensive in comparison with the other neutron sources such as a fission reactor and an accelerator. The limitation may be mitigated by using the IECF with D-T fusion.