# Neutron-induced activation cross-sections for fusion technology applications

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Neutron-induced reaction cross sections are important for nuclear fission and fusion applications. Activation and transmutation analyses for the high intensity neutron sources require a full set of cross section data comprising all target nuclides that may be present in the materials to be irradiated. Radiation materials damage is largely governed by helium and hydrogen production. The radiation hazards and decay heat are associated with the activation products and neutron transport related to the (in)elastic scattering and (n,xn) cross sections. Accurate knowledge on neutron-induced activation cross sections is important for testing of current nuclear models.

Nuclear fusion is recognised as a long-term energy source. The most important initiative on fusion research is currently the ITER project. Safety and environmental issues are of great importance in the continuing development of the power plants. In this respect, a sound, complete and reliable neutron-induced activation cross-section data library is required. Nuclear data needs and applications for fusion technology applications will be discussed.

Activation cross section measurements on reactions that may produce important impurities in so-called low-activation materials will be presented. Such impurities may be the main cause of residual radioactivity following exposure to intense energetic neutron fields and may eventually lead to alteration of important material properties.