High fluence neutron irradiation of coated conductors

M. Eisterer, R. Prokopec, T. Baumgartner

Atominstitut, Vienna University of Technology, Stadionallee 2, 1020 Vienna, Austria

The conductor of the fusion magnets will be exposed to a high fluence of fast neutrons (e.g. 3-$5\cdot10^{22}$ m^{-2} are expected for DEMO) during the entire lifetime of the device. Such high neutron fluences will be challenging for many superconducting materials including Nb_3Sn and the cuprates. In order to estimate the ultimate radiation resistance of these two classes of materials, sequential irradiation experiments are currently performed with a target fluence exceeding $5\cdot10^{22}$ m^{-2}. Recent results on the superconducting and mechanical properties of coated conductors after high fluence irradiation will be reported and compared to available data on Nb_3Sn.