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^{50,53}Cr neutron capture cross section measurements

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Chromium is a very relevant element regarding criticality safety in nuclear reactors because its presence in stainless steel, used as structural material. There are serious discrepancies between the different evaluated data of ^{50}Cr and ^{53}Cr neutron capture cross sections which are not present in the corresponding estimated uncertainties. The Nuclear Energy Agency (NEA) opened an entry in their High Priority Request List (HPRL) to measure these reactions between 1 and 100 keV within 8-10% accuracy. Two experiments have been performed for this matter: one based on the time-of-flight technique at the n_TOF facility of CERN (Geneva, Switzerland) and another based on activation of ^{50}Cr at the HiSPANoS facility of CNA (Seville, Spain). The final results of both experiments, their comparison with the previous evaluations and their implications will be presented here.

Abstract

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