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The $^{237}\text{Np}(n, f)$ cross section from $E_n=10^{-2}$ eV to 200 MeV
FREDRIK TOVESSON, TONY HILL, Los Alamos National Laboratory — The fission cross section of ^{237}Np relative to ^{235}U was measured at the LANSCE spallation neutron source. This nuclear reaction data has been requested with a 1% accuracy to support of the advanced fuel cycle initiative (AFCI). By combining measurements at both moderated and bare neutron producing targets, the differential fission cross section was obtained from thermal energies to 200 MeV. The fission detector consisted of a parallel plate ionization chamber, which has a near 100% efficiency and is relatively insensitive to alpha particles. In order to reach the high precision requirement in the energy region of interest, detailed studies of the error sources were performed. The $^{238}\text{U}(n,f)$ reaction was used to determine the level of low energy background, and a specially dedicated system was set up to monitor dark current effects from the accelerator.

Fredrik Tovesson
Los Alamos National Laboratory

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