

“Neutron capture today” = description of actions and results from the *indc(nds) –0886 (2023) tbp*

Monday, 9 October 2023 10:15 (1 hour)

The low mass $A < 70$ targets have been revisited and improved and delivered to NDS as an upgrade to the NDS PSF data base. The available information on the direct capture DC contributions has been surveyed and its contribution to the total E1 and M1 primary strength established.

The primary data - The achieved improvements in recent thermal neutron capture data have been acknowledged and in detail tested for ^{57}Fe data. The main improved feature is the extension of low energy E_g detection limit close to zero energy. The primary transitions, assigned with the improved arguments and accuracies of the determined decay schemes allow to address the “upbend” region directly and not by the shape trend analysis as in many earlier attempts. The ^{57}Fe preliminary comparison between different PSF experimental data suggests the need to re-analyse many low energy PSF data with the THC high quality data.

The secondary data -The wealth of secondary transitions, assigned with the same accuracy as the primaries, offer the possibility to study the PSF data using the decay of bound levels with $E_x < B_n$. This is a novel approach, which allows to study the PSF behaviour not only for the E_g dependence but also as a function of the position of the E_x energy in the decay scheme. This method is in the state of testing.

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