New developments in TALYS and TENDL-2021

Thursday, 18 November 2021 15:00 (40 minutes)

At the end of every second year, a new version of both the nuclear model code TALYS and its accompanying nuclear data library TENDL is released. Both are foreseen for December 2021. TALYS-1.96 contains new features such as - explicit evaporation of fission fragments to obtain fission product yields and related neutron observables such as nubar, nu(A) and PFNS - the latest photon strength function models, both phenomenological and microscopic, and a new technique to use these for neutron capture cross sections in the fast neutron range - the ability to read in the RIPL OMP parameters for actinides - an improved deuteron break-up model by M. Avrigeanu The next version of the TALYS Evaluated Nuclear Data Library, TENDL-2021, contains various enhancements over the previous version - an improved overall description of all charged-particle libraries, thanks to improved numerical binning in multiple emission and - adjusted global fitting parameter for stripping for (alpha,n) cross sections - adjusted break-up parameter for deutron-induced library - notable improvement of the proton library, especially for (p,n) cross sections - addition of improved resonance parameters for several nuclides from the JEFF community - a globally improved descritpion of neutron-induced capture cross sections in the fast energy range by applying the new PSF models and automated fitting via the TASMAN code. - a photonuclear data library based on the SMLO2019 photon strength function, bringing the results close to the latest IAEA-PD library - a good global description of subactinide fission As production into ENDF and GNDS format has been automated, TENDL-2021 is particularly useful for general application in nuclear technology.

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