EXPLANATION OF TABLE (KTUY05)

The nuclides listed in the Table lie in the range $2 \leq Z \leq 130$, $2 \leq N \leq 200$ with the following limitation. On the neutron-rich side, we limit to nuclei with $S_n(Z, N) > -1.2$ MeV or $S_n(Z, N - 1) > -1.2$ MeV. We put this rather moderate limitation because there is some uncertainty in the mass formula and, in addition, the mass data of unstable neutron-rich nuclei are often used to study the neutron-emission instability experimentally. On the proton-rich or neutron-deficient side, we limit to nuclei with $S_p(Z, N) > -Z/50 - 1.2$ MeV or $S_p(Z - 1, N) > -(Z - 1)/50 - 1.2$ MeV. We sometimes need mass data of the nuclei outside the proton-drip line. In order to determine the above limit, we have checked the current experimental data in the proton-emission region. The number of nuclides in this table is 9437, and the number of the “stable” nuclides against particle emission, which are defined by $S_n > 0$, $S_{2n} > 0$, $S_p > 0$, $S_{2p} > 0$, is 6592.

$Z$ Proton number.
$N$ Neutron number.
$A$ Mass number.

$M_{cal}$ Calculated mass excess in MeV.

$*$ One-particle-unstable nuclide determined by $S_n(Z, N) < 0$ or $S_p(Z, N) < 0$

$**$ Two-particle-unstable, but one-particle-stable, nuclide defined by $S_n(Z, N) > 0$ and $S_{2n}(Z, N) < 0$, or $S_p(Z, N) > 0$ and $S_{2p}(Z, N) < 0$

$o$ $\beta$-stable nuclide defined by $Q_{EC}(Z, N) < 0$ and $Q_{\beta^-}(Z, N) < 0$

$\alpha_2, \alpha_4, \alpha_6$ Deformation parameters.

$E_{sh}$ Shell energy in MeV.

$S_n$ Calculated one-neutron separation energy. (MeV)

$S_{2n}$ Calculated two-neutron separation energy. (MeV)

$S_p$ Calculated one-proton separation energy. (MeV)

$S_{2p}$ Calculated two-proton separation energy. (MeV)

$M_{exp}$ Experimental mass excess in MeV. We use the masses of Audi-Wapstra-Thibault03 but excluding their systematics values. We take the significant figures down to 0.01 MeV in conformity with the list of calculated mass excesses.

$-$ No calculated value, or no experimental value in Ref. 4).

References