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THE INFORMATION SYSTEM MASCA FOR CALCULATION AND GRAPHICAL REPRESENTATION OF ATOMIC MASSES, BINDING ENERGIES OF NUCLEI, ENERGIES OF SEPARATIONS AND NUCLEAR DECAYS, ENERGY THRESHOLDS OF NUCLEAR REACTIONS

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The database MASCA contains the evaluated atomic mass values of AME 2020 [1]. The program-interface to it allows getting the recommended values of atomic mass and nuclear binding energy for a given nuclide, as well as the calculated values of the energies of the main nuclear decays; the energies of proton and neutron separations; nuclear pairing energies; energy thresholds of nuclear reactions caused by protons, neutrons, deuterons, gamma quanta, etc. The covariance matrix is used to calculate the uncertainties of the derived quantities.
For the selected group of nuclides and the selected mass characteristics, a table of their values and a graphical representation of their changes for any of the three parameters A, Z, N can be got [2]. The resulting tables and graphs can be saved and used in applications. The database MASCA and the program-interface to it have passed state registration [3] and are free distributed on request.
Using databases of different years under the same shell, AME 2012, AME 2016 and AME 2020, allows us to compare them quantitatively and study the dynamics of our knowledge in this area.
The information system MASCA can be used for educational purposes when studying the basics of nuclear physics.

1. W.J.Huang et al., Chinese Phys. C45, 030002 (2021).
2. L.P.Kabina et al. PNPI preprint 3053, Gatchina, 2021, 20 p.
3. L.P.Kabina et al. The certificate 2017620770 of state registration of the database, 2017; The certificate 2017615009 of state registration of the code, 2017.

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