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BETA-DECAY OF NUCLEI NEAR N=126 CLOSED NEUTRON SHELL

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Within the Generalized Energy-density Functional method we have systematically calculated the beta-decay total energy releases, half-lives and beta-delayed neutron emission branchings for near-spherical nuclei with charge numbers $Z = 60 - 80$ near the neutron shell at $N = 126$. Together with our previous calculations this provides a basic set of the weak rates for the r-process modeling. Our half-lives predictions can provide a benchmark for the experiments on the production of heavy neutron-rich nuclei close to $N = 126$ and measuring their beta half-lives at the fragment separator FRS-ESR at the GSI, Darmstadt. A reasonable agreement with the half-lives recently measured in GSI justify our predictions for the half-lives of the $N = 126$ r-process waiting-point nuclei. We will specifically discuss a principal contribution of first-forbidden transitions to the half-lives and P_n -values near $N = 126$.

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