



Considerations on the validity of GEF in an extended region

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An attempt is made to estimate the fission properties of systems in an extended region on the chart of the nuclides by use of the semi-empirical GEF model. The GEF model has proven to describe the fission yields from neutron-deficient mercury isotopes to rutherfordium rather well. This has been achieved by assuming that the fission yields are given by the statistical population of the states in the fission valleys, which are formed by the macroscopic potential and four proton shells in the nascent fragments. The shells are connected with peaks in the measured fragment Z distributions near $Z=36$, 52, 55, and 60, and the measured yields of the corresponding fission channels are related to their strengths.

The validity of calculated fission yields of very heavy and very neutron-rich systems and an eventual influence of the $Z=82$ shell are discussed.