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**Fission barriers as nuclear input for r-process simulation in covariant density functional theory**[1] AHMAD TANINAH, S. E. AGBEMAVA, A. V. AFANASJEV, Mississippi State University — The systematic investigation of the ground state and fission properties of even-even actinides and superheavy nuclei with $Z = 90 - 120$ from the two-proton up to two-neutron drip lines with proper assessment of systematic theoretical uncertainties has been performed for the first time in the framework of covariant density functional theory (CDFT). These results provide a necessary theoretical input for the r-process modeling in heavy nuclei. Four state-of-the-art globally tested covariant energy density functionals (CEDFs), namely, DD-PC1, DD-ME2, NL3*, and PC-PK1, representing the major classes of the CDFT models are employed in the present study. Theoretical uncertainties in the ground state deformations and fission barriers and their evolution as a function of proton and neutron numbers have been quantified and their major sources have been identified. Spherical shell closures at $Z = 120$, $N = 184$, and $N = 258$, as well as nuclear matter properties of employed CEDFs, are two major factors contributing to theoretical uncertainties.

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