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Covariant energy density functionals: parametric correlations and the propagation of statistical errors[1] SYLVESTER AGBEMAVA, ANATOLI AFANASJEV, Mississippi State University — Because of the complexity of nuclear many-body problem modern theoretical tools rely on some approximations in its solution. As a result, it becomes necessary to estimate theoretical uncertainties in the description of physical observables. This is especially important when one deals with the extrapolations beyond the known regions. There are two types of such uncertainties: systematic and statistical. Systematic theoretical uncertainties in the description of physical observables within the covariant density functional theory have been evaluated in [1]. Present work is focused on the evaluation of statistical uncertainties for major classes of covariant energy density functionals (CEDFs) and their propagation with particle number (towards extremes of nuclear landscape) and deformation. These uncertainties are evaluated for different classes of physical observables (ground state and single-particle properties [2], fission barriers [3]) and compared with systematic ones. Moreover, the correlations between the parameters of the CEDFs are evaluated with the goal to see to which degree they are independent. [1] S. E. Agbemava et al, Phys. Rev. C 89, 054320 (2014). [2] S. E. Agbemava and A. V. Afanasjev, submitted to Phys. Rev. C. [3] S. E. Agbemava et al, Phys. C 95, 054324 (2017)

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