Abstract Submitted
for the SES20 Meeting of
The American Physical Society

Global Performance and Optimization of Separable Pairing in Covariant Density Functional Theory[1] SAJA TEETI, ANATOLI AFANASJEV, Mississippi State Univ — Over the recent years separable pairing interaction [1] has found a widespread use in covariant density functional theory (CDFT) as an alternative to the pairing interaction based on the finite range Gogny force [2]. Both types of pairing allow to eliminate the uncertainties connected with the definition of the size of pairing window, but the former one is less numerically time-consuming. For the first time we carried out the global analysis of the performance of separable pairing and its optimization as a function of mass, proton and neutron numbers. The analysis is based on the comparison of calculated Δ_{uv} pairing gaps in even-even nuclei [which according to Ref. [4] represents the best measure of pairing correlations] with experimental $\Delta^{(5)}$ pairing indicators. The impact of time-odd mean fields on pairing indicators is taken into account. [1] Y. Tian, Z. Y. Ma, and P. Ring, Phys. Lett. B 676, 44 (2009). [2] D. Vretenar, A.V. Afanasjev, G.A. Lalazissis and P. Ring, Phys. Rep. 409 (2005) 101. [3] S. Teeti and A. V. Afanasjev, in preparation. [4] S. E. Agbemava, A. V. Afanasjev, D. Ray, and P. Ring, Phys. Rev. C 89, 054320 (2014).

[1]This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics under Award No. DE- SC0013037.

Saja Teeti
Mississippi State Univ

Date submitted: 20 Oct 2020 Electronic form version 1.4