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Bayesian inference of dense matter equation of state. Simplified covariant density functionals model.

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A simplified version of the density dependent covariant density functional model is employed in a Bayesian analysis to determine the equation of state (EOS) of dense matter. Various constraints from nuclear physics; ab initio calculations of pure neutron matter (PNM); a lower bound on the maximum mass of neutron stars (NSs) are imposed in the order to investigate the effectiveness of their progressive incorporation as well as their compatibility. We demonstrate the importance of the constraints on PNM and show explicitly that correlations among parameters of nuclear matter and properties of NSs are model and setup dependent. Only nucleonic degrees of freedom are considered.

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