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Green's functions approach for homogeneous nuclear matter

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In this talk, an *ab initio* study of infinite nuclear matter is presented within a recently introduced Green's function approach based on the state-of-the-art algebraic diagrammatic construction (ADC) scheme [1-3].
The goal is, on the one hand, to show the power of the method, that allows to access not only the equation of state (EOS), but also single-particle properties such as the momentum distributions and the one-nucleon spectral functions.
On the other hand, new predictions for the popular chiral interactions NNLO_{sat} and Delta NNLO Go are presented and validated by a comparison with coupled-cluster calculations [4], and the saturation properties are shown to be different from what thought previously.
Finally, as an example of the interest of nuclear matter, its connections to and impact on the nuclear energy density functional (EDF) are outlined [1,5].

[1] F. Marino, PhD thesis, University of Milano (2023)
[2] C. Barbieri and A. Carbone, Lect. Notes Phys. 936, 571 (2017)
[3] F. Marino, C. Barbieri and G. Colo', in preparation
[4] F. Marino, W. Jiang, S. Novario et al, in preparation
[5] F. Marino et al., Phys. Rev. C 104, 024315 (2021)

session

I. Nuclear Structure and Reactions

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