



EINLADUNG zum IFP-SEMINAR

"Efficient treatment of two-particle Green function: A guide from analytical continuation"

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Host: Jan Kuneš
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In this talk, I address two problems in quantum many-body calculations: (1) ill-conditioned analytical continuation of imaginary-time Green functions and (2) treatment of complicated correlation functions such as the vertex part. The former reduces reliability of even highly accurate QMC data regarding dynamical properties, and the latter limits applications of, for example, diagrammatic extensions of dynamical mean-field theory (DMFT).

I first present a new approach to analytical continuation called "sparse modeling", and show that a stable analytical continuation is possible [1]. A detailed analysis of analytical continuation reveals the existence of a quite efficient basis set which can express the single-particle and two-particle Green function in an extremely compact form [2]. It suggests that the new basis could improve efficiency of QMC measurements and diagrammatic calculations including vertex parts.

References:

- [1] J. Otsuki, M. Ohzeki, H. Shinaoka, K. Yoshimi: Phys. Rev. E 95, 061302(R) (2017)
- [2] H. Shinaoka, J. Otsuki, M. Ohzeki, K. Yoshimi: arXiv:1702.03054