EINLADUNG zum IFP-SEMINAR

Sparse modeling of one- and two-particle Green's functions

Hiroshi Shinaoka

Saitama University, Japan

Host:	Associate Prof. Jan Kunes, PhD
Termin:	Donnerstag, 26. September 2019, 14 Uhr
Ort:	Institut für Festkörperphysik, TU Wien
	Wiedner Hauptstraße 8-10, 1040 Wien
	Seminarraum DB gelb 09 (gelber Bereich, 9. OG)

We review our recent work on a compact representation of Green's functions. First, we introduce the intermediate representation (IR) for one-particle Green's functions, and show how to perform diagrammatic calculations at finite temperature using a sparse sampling scheme. As a demonstration, we show numerical results of diagrammatic GW and GF2 calculations of a hydrogen chain, of noble gas atoms and of a silicon crystal. Second, we propose a compact tensor network representation of two-particle Green's functions based on the IR basis, and extend the sparse sampling scheme to two-particle quantities. We demonstrate the efficiency of the present scheme by performing static/dynamical susceptibility calculations in the framework of DMFT.