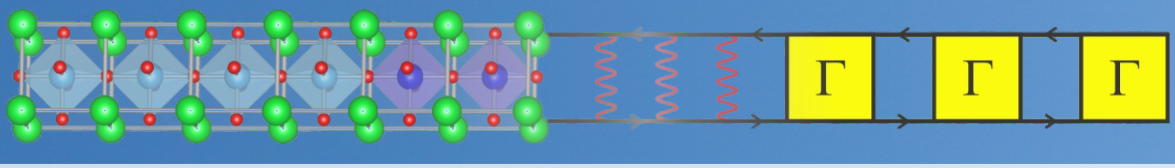
Summer School 2018

Bandstructure meets quantum field theory

Vienna, July 2-6, 2018



Simulating materials with strong electronic correlations is a key challenge in condensed matter physics: It requires insights of both, band-structure and many-body, techniques. A breakthrough came by merging dynamical mean-field theory (DMFT) with density-functional theory (DFT) and Hedin's *GW* approach. The current frontier are *non-local* correlation effects — crucial for phase-transitions, low dimensions — which can be studied within the dynamical vertex approximation (DΓA) or the dual fermion approach. The Summer School covers the entire spectrum with lectures (and *hands-on courses*):

- Density functional theory (*Wien2K*)
- Feynman diagrams
- *GW* approach (*VASP*)
- Wannier function projection (*wien2wannier*)
- Dynamical mean-field theory
- Continuous-time quantum Monte Carlo (CT-QMC, *w2dynamics*)
- Dual fermions (DF)
- Parquet and ab initio dynamical vertex approximation (DΓA *victory*, *ADGA*)

Organizers
Karsten Held
Georg Kresse
Jan Tomczak

Invited speakers
Peter Blaha
Jan Kuneš
Gang Li
Alexander I. Lichtenstein
Alessandro Toschi
Dieter Vollhardt
Philipp Werner

Instructors
Anna Galler
Patrik Gunacker
Andreas Hausoel
Merzuk Kaltak
Anna Kauch
Josef Kaufmann
Matthias Pickem
Patrik Thunström

www.cecam.org/workshop-1538.html

Application deadline
March 25, 2018

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