

Programme on

“Synergies between Mathematical and Computational Approaches
to Quantum Many-Body Physics”

August 29 – October 21, 2016

organized by

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School

September 26 – 30, 2016

• Monday, September 26, 2016

09:00 – 09:30 **Opening & Registration**09:30 – 10:30 **Ali Alvai***Full Configuration Interaction Quantum Monte Carlo*10:30 – 11:00 *coffee / tea break*11:00 – 12:00 **Ali Alvai***Applications of FCIQMC to strongly correlated ab initio systems: from the Cr₂ molecule to cuprates*12:00 – 14:00 *lunch break*14:00 – 15:00 **Karsten Held***Dynamical mean field theory*15:00 – 15:30 *break*15:30 – 16:30 **Karsten Held***Dynamical vertex approximation*

• Tuesday, September 27, 2016

09:30 – 10:30 **Walter Metzner***Functional renormalization group approach to interacting fermion systems I*10:30 – 11:00 *coffee / tea break*11:00 – 12:00 **Walter Metzner***Functional renormalization group approach to interacting fermion systems II*12:00 – 14:00 *lunch break*14:00 – 15:00 **Carsten Honerkamp***Functional RG for (some) two-dimensional materials*15:00 – 15:30 *break*15:30 – 16:30 **Nils Wentzell***High-frequency asymptotics of the vertex function: diagrammatic parametrization and algorithmic implementation*16:45 – 18:45 **Poster Session**

- **Wednesday, September 28, 2016**

09:30 – 10:30 **Emanuel Gull**

Introduction to DCA I

10:30 – 11:00 *coffee / tea break*

11:00 – 12:00 **Emanuel Gull**

Introduction to DCA II

- **Thursday, September 29, 2016**

09:30 – 10:30 **Philipp Werner**

DMFT for models with dynamically screened local interactions

10:30 – 11:00 *coffee / tea break*

11:00 – 12:00 **Philipp Werner**

Extended DMFT for models with long-range Coulomb interactions

12:00 – 14:00 *lunch break*

14:00 – 15:00 **Georg Kresse**

Approximate methods for the correlation energy: the basics

15:00 – 15:30 *break*

15:30 – 16:30 **Georg Kresse**

Approximate methods for the correlation energy: the random phase approximation and improvements

- **Friday, September 30, 2016**

09:30 – 10:30 **Lode Pollet**

An introduction to diagrammatic Monte Carlo: polaron systems and beyond I

10:30 – 11:00 *coffee / tea break*

11:00 – 12:00 **Lode Pollet**

An introduction to diagrammatic Monte Carlo: polaron systems and beyond II

12:00 – 14:00 *lunch break*

14:00 – 15:00 **Fakher Assaad**

Recent progress in fermion Monte Carlo: deconfined phases and phase transitions

15:00 – 15:30 *break*

15:30 – 16:30 **Roman Orus**

Introduction to Tensor Network states and methods

All talks take place at the ESI, Boltzmann Lecture Hall!