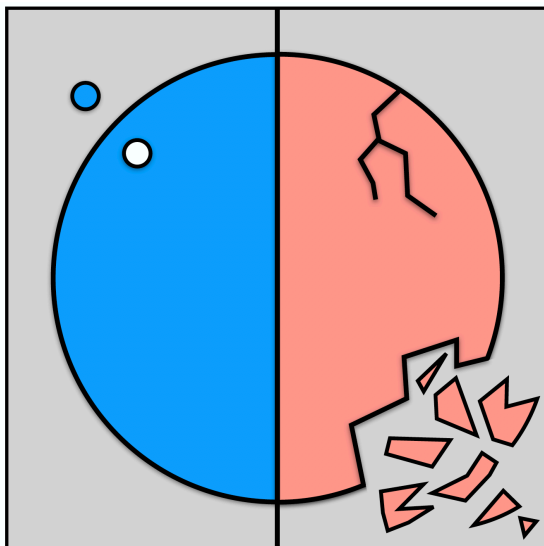


International School
17 - 28 February 2020

Gapless Fermions - from Fermi liquids to strange metals

PROGRAM



Scientific coordinators:

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The program will be continuously updated during the event. This version was printed on February 25, 2020

Program

Sunday, 16 February

- | | |
|---------------|--|
| 18:00 - 20:00 | Registration at guest house 4, library |
| 19:00 - 21:00 | Welcome reception and dinner at the MPIPKS |
| 20:00 - 21:30 | Informal discussions |

Monday, 17 February

- 08:45 - 09:00 **Scientific coordinators**
Opening
- 09:00 - 11:00 **Igor Herbut** (Simon Fraser University)
Relativistic fermions in condensed matter:
symmetries, interactions, phase transitions I
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Igor Herbut** (Simon Fraser University)
Relativistic fermions in condensed matter:
symmetries, interactions, phase transitions II
- 12:30 - 13:30 Lunch break
- 13:30 - 14:00 Informal discussions
- 14:00 - 16:00 **Jeff Rau** (University of Windsor)
From Microscopics to Effective Models I
- 16:00 - 16:30 Coffee break
- gaples20-Colloquium chair: Paul McClarty (MPIPKS)
- 16:30 - 17:30 **gaples20-Colloquium: Joseph Checkelsky**
(Massachusetts Institute of Technology)
Synthesizing Model Quantum Materials
- 17:30 - 18:00 Informal discussions
- 18:00 - 19:00 Dinner
- 19:00 - 21:00 Informal discussions

Tuesday, 18 February

- 09:00 - 11:00 **Jeff Rau** (University of Windsor)
From Microscopics to Effective Models II
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Igor Herbut** (Simon Fraser University)
Relativistic fermions in condensed matter:
symmetries, interactions, phase transitions III
- 12:30 - 13:30 Lunch break
- 13:30 - 14:00 Informal discussions
- 14:00 - 16:00 **Amalia Coldea** (University of Oxford)
Using high magnetic fields to explore anomalous
electronic behaviour
- 16:00 - 16:30 Coffee break
- 16:30 - 17:30 **Joseph Checkelsky**
(Massachusetts Institute of Technology)
Experiments on strongly correlated metals
- 17:30 - 18:00 Informal discussions
- 18:00 - 19:00 Dinner
- 19:00 - 21:00 Poster session (focus on odd poster numbers)

Wednesday, 19 February

- 09:00 - 11:00 **Ramamurti Shankar** (Yale University)
Renormalization Group for Fermions I
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Claudia Felser**
(Max Planck Institute for Chemical Physics of Solids)
Topological materials science
- 12:30 - 12:45 Group photo (to be published online)
- 12:45 - 14:00 Lunch break & informal discussions
- 14:00 - 15:00 **Johannes Gooth**
(Max Planck Institute for Chemical Physics of Solids)
The electron quasi-particle zoo in topological
semimetals
- 15:00 - 16:00 **Veronika Sunko**
(Max Planck Institute for Chemical Physics of Solids)
Delafossite oxides: natural, ultra-pure metal-insulator
heterostructures I
- 16:00 - 16:30 Coffee break
- 16:30 - 17:30 **Veronika Sunko**
(Max Planck Institute for Chemical Physics of Solids)
Delafossite oxides: natural, ultra-pure metal-insulator
heterostructures II
- 17:30 - 18:00 Informal discussions
- 18:00 - 19:00 Dinner
- 19:00 - 21:00 Informal discussions

Thursday, 20 February

- 09:00 - 11:00 **Ramamurti Shankar** (Yale University)
Renormalization Group for Fermions II
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Ramamurti Shankar** (Yale University)
Renormalization Group for Fermions III
- 12:30 - 13:30 Lunch break
- 13:30 - 14:00 Informal discussions
- 14:00 - 16:00 **Sung-Sik Lee** (Perimeter Institute for Theoretical
Physics & McMaster University)
Low energy field theories for non-Fermi liquids I
- 16:00 - 16:30 Coffee break
- 16:30 - 17:30 **Sung-Sik Lee** (Perimeter Institute for Theoretical
Physics & McMaster University)
Low energy field theories for non-Fermi liquids II
- 17:30 - 18:00 Informal discussions
- 18:00 - 19:00 Dinner
- 19:00 - 21:00 Informal discussions

Program

Friday, 21 February

- 09:00 - 11:00 **Ramamurti Shankar** (Yale University)
Renormalization Group for Fermions IV
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Sung-Sik Lee** (Perimeter Institute for Theoretical
Physics & McMaster University)
Low energy field theories for non-Fermi liquids III
- 12:30 - 13:30 Lunch break
- 13:30 - 14:00 Informal discussions
- 14:00 - 16:00 **Sung-Sik Lee** (Perimeter Institute for Theoretical
Physics & McMaster University)
Low energy field theories for non-Fermi liquids IV
- 16:00 - 16:30 Coffee break
- 16:30 - 18:00 Discussions
- 18:00 - 19:00 Dinner
- 19:00 - 21:00 Informal discussions

Saturday, 22 February

09:00 - 15:00 excursion to Meissen (details will be given upon registration)

Monday, 24 February

09:00 - 11:00 **Matthias Vojta** (Technical University of Dresden)
Kondo physics, quantum phase transitions,
and exotic metals I

11:00 - 11:30 Coffee break

11:30 - 12:30 Discussions

12:30 - 13:30 Lunch break

13:30 - 14:00 Informal discussions

14:00 - 16:00 **Fakher Assaad** (Julius-Maximilians-University Würzburg)
Fermion Quantum Monte Carlo I

16:00 - 16:30 Coffee break

16:30 - 17:30 **Fakher Assaad** (Julius-Maximilians-University Würzburg)
Fermion Quantum Monte Carlo II

17:30 - 18:00 Informal discussions

18:00 - 19:00 Dinner

19:00 - 21:00 Informal discussions

Tuesday, 25 February

- 09:00 - 11:00 **Matthias Vojta** (Technical University of Dresden)
Kondo physics, quantum phase transitions,
and exotic metals I
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Matthias Vojta** (Technical University of Dresden)
Kondo physics, quantum phase transitions,
and exotic metals II
- 12:30 - 13:30 Lunch break
- 13:30 - 14:00 Informal discussions
- 14:00 - 16:00 **Walter Metzner**
(Max Planck Institute for Solid State Research)
Functional renormalization group approach to
correlated fermion systems I
- 16:00 - 16:30 Coffee break
- 16:30 - 17:30 **Walter Metzner**
(Max Planck Institute for Solid State Research)
Functional renormalization group approach to
correlated fermion systems II
- 17:30 - 18:00 Informal discussions
- 18:00 - 19:00 Dinner
- 19:00 - 21:00 Poster session (focus on even poster numbers)

Wednesday, 26 February

- 09:00 - 11:00 **Thierry Giamarchi** (Université de Genève)
1D quantum systems and bosonization I
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Thierry Giamarchi** (Université de Genève)
1D quantum systems and bosonization II
- 12:30 - 13:30 Lunch break
- 13:30 - 14:00 Informal discussions
- 14:00 - 16:00 **Walter Metzner**
(Max Planck Institute for Solid State Research)
Functional renormalization group approach to
correlated fermion systems III
- 16:00 - 16:30 Coffee break
- 16:30 - 17:30 **Jörg Schmalian**
(Karlsruhe Institute of Technology)
Transport Properties I
- 17:30 - 18:00 Informal discussions
- 18:00 - 19:00 Dinner
- 19:00 - 21:00 Informal discussions

Thursday, 27 February

- 09:00 - 11:00 **Jörg Schmalian**
(Karlsruhe Institute of Technology)
Transport Properties II
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Antoine Georges** (Collège de France, Paris and
Flatiron Institute, New York City)
Strong Correlations: the Dynamical Mean-Field
Theory viewpoint I
- 12:30 - 13:30 Lunch break
- 13:30 - 14:00 Informal discussions
- 14:00 - 16:00 **Antoine Georges** (Collège de France, Paris and
Flatiron Institute, New York City)
Strong Correlations: the Dynamical Mean-Field
Theory viewpoint II
- 16:00 - 16:30 Coffee break
- 16:30 - 17:30 **Andrew Mackenzie**
(Max Planck Institute for Chemical Physics of Solids)
Uniaxial pressure as a tuning parameter for
condensed matter physics
- 17:30 - 18:00 Informal discussions
- 18:00 - 19:00 Dinner
- 19:00 - 21:00 Informal discussions

Friday, 28 February

- 09:00 - 11:00 **Jörg Schmalian**
(Karlsruhe Institute of Technology)
Transport Properties III
- 11:00 - 11:30 Coffee break
- 11:30 - 12:30 **Jörg Schmalian**
(Karlsruhe Institute of Technology)
Transport Properties IV
- 12:30 - 13:30 Lunch break
- 13:30 - 13:45 Closing remarks
- 13:45 - 15:00 Informal discussions & departure