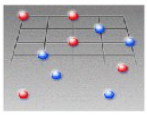
Student Seminar
Winter Term 2014/2015
Mainz, September 7–9, 2014



SFB/Transregio 49
Frankfurt – Kaiserslautern - Mainz
Condensed matter systems with variable many-body interactions

Sunday, September 7

15.00-16:30	**Guided sightseeing at Fortress of Mainz**
18:00-19:00	*Dinner*

Monday, September 8

08:00-09:00	*Breakfast*
09:00-10:30	**Overview about SFB/TR49, Division into working groups**
	A) Quantum gases and magnon gases
	B) Quantum spins
	C) Charge-transfer salts
10:30-11:00	*Coffee Break*
11:00-12:30	**Working groups**
12:30-14:00	*Lunch*
14:00-15:30	**Working groups**
15:30-16:00	*Coffee Break*
16:00-17:30	**Working groups**
18:00-20:00	*Dinner*

Tuesday, September 9

08:00-09:00	*Breakfast*
09:00-10:30	**Presentations of working group A) Quantum gases and magnon gases**
10:30-11:00	*Coffee Break*
11:00-12:30	**Presentations of working group B) Quantum spins**
12:30-14:00	*Lunch*
14:00-15:30	**Presentations of working group C) Charge-transfer salts**
15:30-16:00	*Coffee Break*
16:00-	Departure

SFB/TR49 Collaborative Student Workshop

Mainz, Sept. 7-9, 2014

Welcome to the retreat! You are here because your research is in some way connected to the activities of the *Collaborative* Research Center TR49 „Condensed Matter Systems with Variable Many-Body Interactions“. In order to pursue the common goal of understanding complex many-body phenomena from as many angles as possible, the TR49 research spans a variety of areas in physics and chemistry:

1.) Materials Design (synthesis, creation of many-body systems)
2.) Cooperative Phenomena (phase transitions, spin-liquids, Mott insulators, supersolids, superconductors)
3.) Study of Excitations (quasi-particles)
4.) Development of Novel Techniques (theory and experiment)

Moreover, these areas are studied on different classes of condensed matter systems:

A.) Ultracold Quantum Gases and Magnon Gases
B.) Quantum Spin Systems
C.) Charge Transfer Salts

Obviously it is easy to loose the overview in all these research activities. In order to perform *collaborative* research, we first have to be able to understand and explain what is going on, which is pretty much the goal of this retreat.

INSTRUCTIONS

Step 0.) Introduction (Monday, 9:00-10:30)
Tell everyone who you are:
What is your research field? Which areas (1-4) and material class (A,B,C) fit best for you?

Step 1.) Individual Methods and Goals (Monday, 11-12:30)
Discussion in working groups according to material class (A,B,C). Explain your research in more detail to your colleagues. What are your current methods and goals (or results, if applicable)? Can you identify similar interests with others, e.g. based on techniques or phenomena? Does your research depend on or help other researchers in the working group?

Step 2.) Identifying connections to other fields (Monday, 14-15:30)
Try to identify the most interesting topics and common themes in your working group. Are there common directions? Which problems/questions/methods/results could be interesting to other material classes in the TR49? Which are of interest to the worldwide scientific community?

Step 3.) Setting up the presentation (Monday, 16-17:30)
Put together the results of your working group discussions in one presentation, which is no longer than 50 min so it is easy to understand for students outside of your fields. Select two or more representatives to give the presentation.

Step 4.) Presentations (50 min) and discussion (40 min) (Tuesday)