

THE HEBREW UNIVERSITY OF JERUSALEM
ISRAEL INSTITUTE FOR ADVANCED STUDIES

German-Israeli Minerva School on Quantum Dipolar Gases in Atomic and Condensed Matter Systems (DIP-QUANTUM)

October 23-25, 2017

All lectures will take place at the Israel Institute for Advanced Studies,
on the Edmond J. Safra, Givat Ram Campus

Organizers:

Ronen Rapaport (The Hebrew University of Jerusalem)

Paulo Santos (Paul Drude Institute)

Program

Monday, 23 October

- 08:30 - 08:45 **Registration**
- 08:45 - 12:30 Chair: **Paulo Santos** (Paul Drude Institute)
- 08:45 - 09:00 **Ronen Rapaport** (The Hebrew University of
Jerusalem),
Paulo Santos (Paul Drude Institute)
Opening Remarks and greetings by Prof. Michal
Linial
- 09:00 - 10:00 **Tilman Pfau** (Universität Stuttgart)
Dipolar quantum gases and liquids
- 10:00 - 11:00 **Luis Santos** (Universität Hannover)
Dipolar gases: droplets, rotons and peculiar
disorder models
- 11:00 - 11:30 Coffee Break
- 11:30 - 12:30 **Ofer Firstenberg** (Weizmann Institute of Science)
Towards photon-photon interactions with hot
Rydberg atoms
- 12:30 - 14:00 Lunch
- 14:00 - 19:00 Chair: **Alexander Holleitner** (Technical University
Munich)
- 14:00 - 15:00 **Manfred Bayer** (Dortmund University)
Interacting Rydberg Excitons in Cuprous Oxide
- 15:00 - 16:00 **Leonid Butov** (University of California, San
Diego)
Phenomena in cold indirect excitons
- 16:00 - 16:30 Coffee Break

16:30 - 17:30 **Ronen Rapaport** (The Hebrew University of Jerusalem)
Interacting dipolar fluids in semiconductors: excitons and polaritons

17:30 - 19:00 **Poster Session**

19:00 - 21:00 Reception

Tuesday, 24 October

09:00 - 15:30 Chair: **Tilman Pfau** (Universität Stuttgart)

09:00 - 10:00 **Allan H. MacDonald** (University of Texas at Austin)
Exciton Condensates in the Quantum Hall Regime

10:00 - 11:00 **Alexey Kavokin** (University of Southampton)
Polaritonics: a semiconductor platform for quantum simulations

11:00 - 13:00 **Poster Session**

13:00 - 14:30 Lunch

14:30 - 15:30 **Francesca Ferlaino** (University of Innsbruck)
Dipolar physics with ultracold fermionic “magnets”

15:30 - 19:30 **Old City of Jerusalem**
Tour

19:30 - 21:30 **Conference Dinner**
Therasa restaurant

Wednesday, 25 October

09:00 - 12:30 Chair: **Israel Bar Joseph** (Weizmann Institute of Science)

- 09:00 - 10:00 **Sebastian Hofferberth** (Universität Stuttgart)
Nonlinear Quantum Optics mediated by
Rydberg?Rydberg interaction
- 10:00 - 11:00 **Hans Peter Buechler** (Universität Stuttgart)
Emergent universal dynamics for an atomic cloud
coupled to an optical waveguide
- 11:00 - 11:30 Coffee Break
- 11:30 - 12:30 **Alexander Holleitner** (Technical University
Munich)
Collective excitation of dipolar excitons
- 12:30 - 14:00 Lunch
- 14:00 - 18:30 Chair: **Luis Santos** (Universität Hannover)
- 14:00 - 15:00 **Israel Bar Joseph** (Weizmann Institute of Science)
The Exciton Gas-Liquid Phase Transition in
Coupled Quantum Wells
- 15:00 - 16:00 **Fedor Jelezko** (Ulm University)
Light matter quantum interface based on diamond
spin qubits
- 16:00 - 16:30 Coffee Break
- 16:30 - 17:30 **Roe Ozeri** (Weizmann Institute of Science)
Momentum, spin and excitation exchange in
ultracold atom-ion collisions
- 17:30 - 18:30
Closing Remarks