

From FEW to MANY

Exploring quantum systems one atom at a time

Obergurgl (Austria)

April 10-13th, 2017

SCHOOL LECTURERS

Doerte Blume (*Washington State*)
Frédéric Chevy (*LKB-ENS, Paris*)
Rudi Grimm (*IQOQI, Innsbruck*)

SPEAKERS

Jan Arlt (*Aarhus University*)
Grigori Astrakharchik
(*UPC, Barcelona*)
Igor Ferrier-Barbut (*Univ. Stuttgart*)
Doerte Blume (*Washington State*)
Antoine Browaeys
(*Institut d'Optique, Palaiseau*)
Frédéric Chevy (*LKB-ENS, Paris*)
Xiaoling Cui (*IOP, Beijing*)
Simon Fölling (*LMU, Munich*)
Stefano Giorgini (*Univ. Trento*)
Rudi Grimm (*IQOQI, Innsbruck*)
Yusuke Nishida (*Tokyo Inst. of Tech.*)
Dmitry Petrov (*LPTMS, Orsay*)
Leticia Tarruell (*ICFO, Barcelona*)
Joseph Thywissen (*Univ. Toronto*)
Artem Volosniev (*TU, Darmstadt*)
Matthias Weidemüller
(*Univ. Heidelberg*)
Zhenhua Yu (*Sun Yat-Sen Univ.*)
Matteo Zaccanti (*LENS, Florence*)

SCIENTIFIC COORDINATION

Prof Meera Parish / Chair
(*Monash University, Melbourne*)
Dr Jesper Levinsen
(*Monash University, Melbourne*)
Dr Pietro Massignan
(*ICFO and UPC, Barcelona*)
Prof. Dr. Selim Jochim
(*University of Heidelberg*)

CONFERENCE OFFICER

Claudia Platzer
(*University of Innsbruck*)

DATES AND INFO

Application: February 10th
School: April 10th
Conference: April 11-13th
Web: exploring-quantum-systems.at
Email: transferstelle@uibk.ac.at

April 9, 2017 – Arrival date

14:00 / 16:00 Bus transfer from Innsbruck
16:00 - 19:00 Arrival on site and registration
19:00 **Dinner**

April 10, 2017 – One-day school and Arrival date

16:00 Bus transfer from Innsbruck
09:00 – 18:00 One-day-school
19:00 **Dinner**

April 11, 2017

Morning Session (8:45 – 12:00)

09:00 – 09:10 Welcome and Opening of Conference
09:10 – 09:50 „From $N+1$ to $N+N$: exploring itinerant ferromagnetism with repulsive Fermi mixtures” (Matteo Zaccanti, LENS Florence)
09:50 – 10:30 „Coherently coupled Bose gases: from many- to few-body physics” (Alessio Recati, University of Trento)
10:30 – 11:00 **Coffee Break**
11:00 – 11:40 „Observation of quantum-limited spin transport in a strongly interacting 2D Fermi gas” (Joseph Thywissen, University of Toronto)
11:40 – 12:20 „Kondo effect and its transport measurement with ultracold atoms” (Yusuke Nishida, Tokyo Institute of Technology)

12:20 – 16:00 **Discussions & Free time** (snowboarding, skiing, cross-country skiing, ice skating, ice curling, sledging, walking) [More info...](#)

Afternoon/Evening Session (16:30 – 19:00)

16:00 – 16:30 **Extended coffee break**
16:30 – 17:10 „Dipolar quantum droplets” (Igor Ferrier-Barbut, University of Stuttgart)
17:10 – 17:50 „Exploring dipolar physics with ultracold atomic gases of Erbium” (Lauriane Chomaz, Innsbruck)
17:50 – 18:30 „Ultradilute Low-Dimensional Liquids (Grigory Astrakharchik, Universitat Politècnica de Catalunya)

19:00 **Dinner**

Poster presentations

April 12, 2017

Morning Session (9:00 – 12:00)

09:10 – 09:50 „Heteronuclear Efimov scenario with large mass difference” (Matthias Weidemüller, University of Heidelberg)
09:50 – 10:30 „Five-body Efimov effect and universal pentamer in fermionic mixtures” (Dmitry Petrov, University Paris-Sud)
10:30 – 11:00 **Coffee Break**
11:00 – 11:40 „Orbital interactions in mixed confinement” (Simon Fölling, LMU/MPQ Munich)
11:40 – 12:20 „Cold atom systems with spin-orbit coupling” (Doerte Blume, Washington State University)

12:20 – 16:00 **Discussions & Free time** (snowboarding, skiing, cross-country skiing, ice skating, ice curling, sledging, walking) [More info...](#)

Afternoon/Evening Session (16:00 – 19:00)

16:00 – 16:30 **Extended coffee break**
16:30 – 17:10 „Observation of the Bose polaron and fundamental fluctuations in Bose-Einstein condensates” (Jan Arlt, Aarhus University)
17:10 – 17:50 „The Bose polaron problem: a quantum Monte-Carlo study” (Stefano Giorgini, University of Trento)
17:50 – 18:30 „Visualizing Efimov physics in Bose polarons” (Xiaoling Cui, Institute of Physics, Beijing)

19:00 **Conference Dinner**

April 13, 2017

Morning Session (9:00 – 12:00)

09:10 – 09:50 „Experimental many-body physics using arrays of individual Rydberg atoms” (**Antoine Browaeys**, Institut d’optique Palaiseau)

09:50 – 10:30 „State transfer in small spin chains” (**Artem Volosniev**, TU Darmstadt)

10:30 – 11:00 Coffee Break

11:00 – 11:40 „One, Two, Three, Many, Few-Body Losses in Many-Body Ensembles” (**Frédéric Chevy**, Ecole Normale Supérieure, Paris)

11:40 – 12:20 „... ” (**Rudolf Grimm**, Innsbruck)

12:20 – 13:00 Light Lunch

Departure