

# Introductory Course on Ultracold Quantum Gases (2015)

Organized by the Innsbruck Physics Research Center of the Innsbruck University, by the SFB “Foundations and Applications of Quantum Science (FoQuS)”, and by the Institute for Quantum Optics and Quantum Information (IQOQI).

Francesca Ferlaino and Rudolf Grimm

## Program

### Mon, 06.07. (IQOQI, Technikerstr. 21 a)

20:00 – 21:00 registration

20:00 – 22:00 get together

### Tue, 07.07. (lecture hall B1, Hörsaalgebäude Technikerstr.13 b)

08:45 – 09:00	Francesca Ferlaino	Welcome
09:00 – 09:45	Francesca Ferlaino	Laser cooling & trapping basics
10:00 – 10:45	Gabriele Ferrari	Key experiments with BEC (part I)
	<i>short break</i>	
11:15 – 12:00	Gabriele Ferrari	Key experiments with BEC (part II)
12:00 – 13:30		<i>lunch break</i>
14:00 – 14:45	Mikhail Baranov	BEC condensation (part I)
15:00 – 15:45	Mikhail Baranov	BEC condensation (part II)
16:00 – 16:30		<i>break</i>
16:30 – 19:30		<i>lab tours</i>

### Wed, 08.07. (lecture hall B1, Hörsaalgebäude Technikerstr.13 b)

09:00 – 09:45	Francesca Ferlaino	Ultracold scattering
10:00 – 10:45	Hanns-Christoph Nägerl	Ultracold molecules
	<i>short break</i>	
11:15 – 12:00	Andreas Läuchli	Bose-Hubbard theory
12:15 – 13:45		<i>lunch break</i>
13:45 – 14:30	Manfred Mark	Experiments in optical lattices
14:45 – 15:30	Lauriane Chomaz	Ultracold atoms in two dimensions
15:45 – 16:30		<i>break</i>
16:30 – 18:00		<i>Discussion with the Nobel Laureate John L. Hall</i>

*Social event: dinner with hiking up to Arzler Alm*

### Thu, 09.07. (lecture hall B1, Hörsaalgebäude Technikerstr.13 b)

09:00 – 09:45	Rudolf Grimm	Degenerate fermi gases (part I)
10:00 – 10:45	Rudolf Grimm	Degenerate fermi gases (part II)
11:00 – 11:15		short break and group photo
11:15 – 12:00	Bernhard Rauer	Atom chips
12:00 – 14:00		<i>lunch break</i>

### SFB colloquium (lecture hall A, VFH-Haus)

14:00 – 15:00	Darrick Chang	Cold atoms coupled to photonic crystals: a platform for creating tunable long-range interactions
15:00 – 15:30		<i>break with refreshments</i>
15:30 – 16:30	Chris Greene	Physics of few-body bound states and collisions
16:30 – 17:30	Arno Rauschenbeutel	Chiral interaction of light and matter in confined geometries

**Social event (Introductory Course and SFB colloquium)**

18:30 Open lecture to celebrate the UNESCO Year of Light  
*Prof. Dr. René Beigang (University of Kaiserslautern):*  
*„Die Illusion der Naturgesetze: Physik jenseits der Kausalität“*

followed by a buffet. We meet at the lecture hall M.EG.180/L.EG.200 at the CCB (Center of Chemistry & Biomedicine), Innrain 80, <http://biocenter.i-med.ac.at/>.