



**Solvay Workshop on 'Quantum simulation with cold matter and photons'  
(8 -11 February 2016)  
Program**

**MONDAY 8 FEBRUARY**

<b>8:30</b>	<b>9:15</b>	Registration	
9:15	9:45	Opening by Marc Henneaux and Peter Zoller	
9:45	10:30	Rainer Blatt	<i>Quantum simulations with cold trapped ions</i>
10:30	11:15	Ignacio Cirac	<i>Quantum simulation and quantum optics in photonic crystals</i>
<b>11:15</b>	<b>11:35</b>	<b>COFFEE BREAK</b>	
11:35	12:20	Hans Peter Büchler	<i>Topological states of matter with cold atomic gases and Rydberg atoms</i>
12:20	13:05	Mikhail Lukin	<i>Quantum dynamics of strongly interacting photons and atoms</i>
<b>13:05</b>	<b>14:20</b>	<b>LUNCH</b>	
14:20	15:05	Klaus Mølmer	<i>The good, the better, and the theoretically best precision measurements with matter and light</i>
15:05	15:50	H. Jeff Kimble	<i>Quantum matter built from strong atom-photon interactions in nanoscopic lattices</i>

**TUESDAY 9 FEBRUARY**

9:45	10:30	Ehud Altman	<i>Many-body localization: new insights from theory and experiments with cold atoms</i>
10:30	11:15	Dmitry Abanin	<i>Many-body localization and prethermalization in periodically driven systems</i>
<b>11:15</b>	<b>11:35</b>	<b>COFFEE BREAK</b>	
11:35	12:20	Enrique Solano	<i>Digital quantum computers versus analog quantum simulators</i>
12:20	13:05	Steven Girvin	<i>Quantum bath engineering for circuit QED systems</i>
13:05	13:15	Group Photo	
<b>13:15</b>	<b>14:20</b>	<b>LUNCH</b>	

14:20	15:05	Francesca Ferlaino	<i>The fascination of Lanthanides for ultracold quantum physics</i>
15:05	15:50	Tilman Esslinger	<i>Quantum problem generators</i>
15:50	16:35	Nigel Cooper	<i>Quantum quenches in Chern insulators</i>
19:30		CONFERENCE DINNER	

## WEDNESDAY 10 FEBRUARY

9:45	10:30	Massimo Inguscio	<i>Observing ultracold symmetries</i>
10:30	11:15	Ana Maria Rey	<i>New perspectives on quantum simulation with alkaline earth atoms</i>
11:15	11:35	COFFEE BREAK	
11:35	12:20	Immanuel Bloch	<i>From many-body localization to Rydberg gases - new frontiers for ultracold atoms</i>
12:20	13:05	Ian B. Spielman	<i>Gauge fields in multi-level atoms: a tutorial</i>
13:05	14:20	LUNCH	
14:20	15:05	Mohammad Hafezi	<i>New prospects in topological photonics</i>
15:05	15:50	Jérôme Beugnon	<i>Direct measurement of Chern numbers in the diffraction pattern of a Fibonacci chain</i>
15:50	16:10	COFFEE BREAK	
16:10	16:55	Jacqueline Bloch	<i>Toward quantum simulation with cavity polaritons</i>
16:55	17:50	Moti Segev/ Mikael Rechtsman	<i>Aspects of photonic topological insulators</i>

## THURSDAY 11 FEBRUARY

9:45	10:30	Mark Saffman	<i>Quantum bits with Rydberg atoms: results, challenges, and new ideas</i>
10:30	11:15	Wolfgang Ketterle	<i>Quantum simulations with laser-assisted tunneling</i>
11:15	11:35	COFFEE BREAK	
11:35	12:20	Eugene Demler	<i>Interferometric probes of many-body systems: from ultracold atoms to quantum materials</i>
12:20	13:05	Uwe-Jens Wiese	<i>Atomic quantum simulation of Abelian and non-Abelian gauge theories</i>
13:05		Concluding remarks by Peter Zoller and colleagues	