

## ITN COHERENCE - EVENT PISA – September 2012



The **COHERENCE School in Pisa** will introduce the young researchers to the "**Fundamentals of Rydberg Atoms and Molecules**" and will thus lay the foundations for the remainder of their studies and research. After the School, there will be a **Young Excited Atomix (YEA) meeting** entirely organized by the young researchers.

The First COHERENCE School will be held at the Department of Physics (Dipartimento di Fisica), Largo Pontecorvo 3, building B , Room G1.

### Schedule

	SUN 16/09	MON 17/09	TUE 18/09	WED 19/09	THU 20/09
8:30 - 8:40		<b>welcome</b>			<b>Ideas Factory: presentations</b> 15' per group <i>(start time: 8.30)</i>
8:40 - 9:00		<b>Adams:</b> IF intro			
9:00 - 9:45		<b>Adams</b>	<b>Gallagher</b>	<b>Mølmer</b>	
9:45: 10:30		<b>Adams</b>	<b>Gallagher</b>	<b>Mølmer</b>	
10:30-11:00		<i>coffee break</i>	<i>coffee break</i>	<i>coffee break</i>	<i>coffee break</i>
11:00 - 11:45		<b>Saffman</b>	<b>Gallagher</b>	<b>Mølmer</b>	<b>Ideas Factory: presentations</b> 15' per group
11:45-12:30		<b>Saffman</b>	<b>Loew</b>	<b>Morsch</b>	
12:30-14:30		lunch	lunch	lunch	lunch
14:30 - 15:15		<b>Saffman</b>	<b>Loew</b>	<b>Morsch</b>	<a href="#"><u>YEA</u></a>
15:15 - 16:00	Pisa walking tour	<b>Whitlock</b>	<b>Loew</b>	<b>Morsch</b>	
16:00 - 16:30		coffee break	coffee break	coffee break	
16:30 - 17:15		<b>Whitlock</b>	<b>Ideas Factory:</b> <b>Leisching</b>	<b>Ideas</b> <b>Factory</b>	
17:15 - 18:00		<b>Whitlock</b>	<b>Ideas Factory:</b> <b>Leisching</b>	<b>Ideas</b> <b>Factory</b>	
				Social dinner	

## Speakers and topics

- **Charles S. Adams**, Department of Physics, Durham University  
Opening lectures + Dipole-dipole interactions for optical dipoles
- **Tom Gallagher**, University of Virginia  
Rydberg atoms I (energy transfer), II (microwave), III (two electrons)
- **Klaus Mølmer**, Aarhus University  
Quantum information with Rydberg atoms: introduction  
Quantum information with Rydberg atoms: theory
- **Oliver Morsch**, CNR- INO, Pisa  
Quantum information with Rydberg atoms: experiments
- **Robert Löw**, Universität Stuttgart  
Rydberg excitation in thermal vapor cells  
Rydberg molecules (V. Bendkowsky, B. Butscher, J. Nipper, J. Balewski, R. Löw & T. Pfau, H Sadeghpour, JM Rost, T Pohl, S Rittenhouse, W Li, J Shaffer)
- **Mark Saffman**, Department of Physics, The University of Wisconsin, Madison  
Dipole-dipole interactions and optical trapping of Rydberg atoms
- **Patrick Leisching**, Toptica Photonics  
TOPTICA & Pisa Ideas Factory
- **Shannon Whitlock**, Physikalisches Institut Universität Heidelberg  
Quantum gases and strongly correlated matter

## Poster session

- *Rydberg state spatial distributions in a cold strontium gas*  
D. Boddy, G. Lochead, D. P. Sadler, C. S. Adams and M. P. A. Jones
- *High-resolution spectroscopy of ultracold Rydberg atoms*  
Johannes Deiglmayr, Heiner Sassmannshausen, Josef Agner, Hans- Juerg Schmutz and Frederic Merkt
- *Charge Transfer Dynamics of Rydberg Hydrogen atoms at Surfaces*  
Mark Dethlefsen, Eric So, Jemma Gibbard, Sashikesh Ganeshalingam, Xiolin Li and Tim Softley
- *Atomic Rydberg Reservoirs for Polar Molecules*  
Alexander W. Glaetzle, Bo Zhao, Guido Pupillo, Peter Zoller
- *Towards atomic ensemble qubits and magnetic nanoscale lattices*  
A.L. La Rooij, A. Tauschinsky, V.Y.F. Leung, J. B. Naber, G. B. Mulder, D. R. M. Pijn, H. B. van Linden van den Heuvell and R.J.C. Spreeuw
- *Excitation spectrum of supersolids*  
Tommaso Macrì, Fabio Cinti, Fabian Maucher, Thomas Pohl
- *Towards a photonic phase-gate using Rydberg polaritons*  
D. Paredes, H. Busche, D. Maxwell, D. J. Szwer, K.J. Weatherill, M. P. A. Jones, C. S. Adams
- *Continuous measurement on ultracold Bose gases: A Bogoliubov Gaussian state description*  
Andrew Wade, Jacob Sherson, Klaus Mølmer
- *Quantum dynamics in 1d Rydberg lattices*  
Guang Wu