



The Abdus Salam
**International Centre
for Theoretical Physics**

Summer School on Quantum Many-Body Physics of Ultra-Cold Atoms and Molecules

Organizer(s): A. Perali, C. Sa de Melo, C. Salomon, S. Yip. Local Organiser: Mikhail Kiselev
Trieste - Italy, 02 - 13 July 2012

Venue: Leonardo da Vinci Building Main Lecture Hall

Programme

Monday, 2 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

- 08:30 - 09:30** (Room: Leonardo da Vinci Building, Lobby)
--- Registration and administrative formalities ---
- 09:30 - 09:40** **Opening**
- 09:40 - 10:40** **R. Grimm**
Feshbach resonance, ultracold molecules, Efimov physics
- 10:40 - 11:00** --- Coffee break ---
- 11:00 - 12:00** **H. Stoof**
Ultra-cold fermions: balanced, and spin or mass imbalanced
- 12:00 - 14:30** --- Lunch break ---
- 14:30 - 15:30** **M. Köhl**
2D Fermi gas
- 15:30 - 16:30** **N. Prokofiev**
Path Integral and Diagrammatic Monte Carlo methods

Tuesday, 3 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

09:00 - 10:00	M. Köhl 2D Fermi gas
10:00 - 11:00	N. Prokofiev Path Integral and Diagrammatic Monte Carlo methods
11:00 - 11:30	--- Coffee break ---
11:30 - 12:30	Y. Lin Artificial gauge, experiments
12:30 - 14:30	--- Lunch break ---
14:30 - 16:30	Poster session
19:15 - 21:45	(Room: Adriatico Guest House (Terrace)) --- RECEPTION ---

Wednesday, 4 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

09:00 - 10:00	M. Köhl 2D Fermi gas
10:00 - 11:00	R. Grimm Feshbach resonance, ultracold molecules, Eftimov physics
11:00 - 11:30	--- Coffee break ---
11:30 - 12:30	H. Stoof Ultra-cold fermions: balanced, and spin or mass imbalanced
12:30 - 14:30	--- Lunch break ---
14:30 - 15:30	G. Shlyapnikov Dipolar quantum gases
15:30 - 16:30	A. Perali Pseudogaps in strongly interacting Fermi systems

Thursday, 5 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

09:00 - 10:00	G. Shlyapnikov Dipolar quantum gases
10:00 - 11:00	C. Salomon Thermodynamics of quantum gases
11:00 - 11:30	--- Coffee break ---
11:30 - 12:30	H. Stoof Ultra-cold fermions: balanced, and spin or mass imbalanced
12:30 - 14:30	--- Lunch break ---

- 14:30 - 15:30** **R. Grimm**
Feshbach resonance, ultracold molecules, Eftimov physics
- 15:30 - 16:00** **Discussion**

Friday, 6 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

- 09:00 - 10:00** **G. Shlyapnikov**
Dipolar quantum gases
- 10:00 - 11:00** **Y. Lin**
Artificial gauge, experiments
- 11:00 - 11:30** --- Coffee break ---
- 11:30 - 12:30** **C. Salomon**
Thermodynamics of quantum gases
- 12:30 - 14:30** --- Lunch break ---
- 14:30 - 15:30** **A. Perali**
Pseudogaps in strongly interacting Fermi systems
- 15:30 - 16:30** **Discussions / Summary**

Monday, 9 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

- 09:00 - 09:30** (Room: Leonardo da Vinci Building, Lobby)
--- Registration and administrative formalities ---
- 09:30 - 10:30** **T. Giamarchi**
1D physics
- 10:30 - 11:00** --- Coffee break ---
- 11:00 - 12:00** **M. Olshanii**
Quantum Nonequilibrium Dynamics
- 12:00 - 14:30** --- Lunch break ---
- 14:30 - 15:30** **U. Schollwöck**
Density Matrix Renormalization Group
- 15:30 - 16:30** **TBA**

Tuesday, 10 July 2012 (Room:Adriatico Guest House Kastler Lecture Hall)

- 09:00 - 10:00** **U. Schollwöck**
Density Matrix Renormalization Group

10:00 - 10:45 **N. Prokofiev**
Path Integral and Diagrammatic Monte Carlo methods

11:00 - 13:00 (Room: Adriatico Guest House Informatics Lab.)
Numerical Lab

14:30 - 17:30 / *Leonardo da Vinci Building - Main Lecture Hall*
Dirac Medal Award Ceremony

Wednesday, 11 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

09:00 - 10:00 **M. Olshanii**
Quantum Nonequilibrium Dynamics

10:00 - 11:00 **T. Giamarchi**
1D physics

11:00 - 11:30 --- Coffee break ---

11:30 - 12:30 **U. Schollwöck**
Density Matrix Renormalization Group

12:30 - 14:30 --- Lunch break ---

14:30 - 16:30 **Poster Session & Poster oral presentation**

Thursday, 12 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

09:00 - 10:00 **L. Sanchez-Palencia**
Cold atomic gases with disorder

10:00 - 11:00 **C. Sa de Melo**
Artificial gauge, theory

11:00 - 11:30 --- Coffee break ---

11:30 - 12:30 **C. Chin**
Scale invariance in 2D gases and optical lattices

12:30 - 14:30 --- Lunch break ---

14:30 - 15:30 **T. Giamarchi**
1D physics

15:30 - 16:30 **C. Chin**
Scale invariance in 2D gases and optical lattices

Friday, 13 July 2012 (Room:Leonardo da Vinci Building Main Lecture Hall)

09:00 - 10:00 **C. Chin**
Scale invariance in 2D gases and optical lattices

10:00 - 11:00 **M. Olshanii**
Quantum Nonequilibrium Dynamics

11:00 - 11:30 --- Coffee break ---

11:30 - 12:30 **L. Sanchez-Palencia**
Cold atomic gases with disorder

12:30 - 14:30 --- Lunch break ---

14:30 - 15:30 **C. Sa de Melo**
Artificial gauge theory

15:30 - 16:30 **Discussions / Summary**