

Mini-workshop on Exactly Solvable Models and Their Application to Cold-Atom Systems

June 20 – 22, 2008, Hong Kong

Institute of Theoretical Physics and Department of Physics
The Chinese University of Hong Kong

Program

Venue: Lecture Theatre L2, Science Centre, CUHK, Shatin, N.T.

Friday, June 20, 2008	
Morning session	8:00 Departure from Regal Riverside Hotel
	8:30 Light breakfast, Ground Floor, Science Centre North Block
	9:00 – 9:15 Opening Hai-Qing Lin, Jose Carmelo
	Chair: Jose Carmelo Focus: Exactly solvable models
	9:15 – 10:00 <i>Exactly solvable models in optical lattices</i> Murray T. Batchelor , Department of Theoretical Physics and Mathematical Sciences Institute, The Australian National University
	10:00 – 10:40 Coffee break and informal discussions
	10:40 – 11:10 <i>Exact solution of the Bose-Fermi Kondo model with a singular dissipative bosonic spectrum</i> Jian-Hai Dai , Zhejiang Institute of Modern Physics, Zhejiang University
	11:10 – 11:40 <i>Response of a non-equilibrium Fermi gas to a sudden switch-on potential: an exact solution and the applications to mesoscopic systems</i> Yi Zhou , Department of Physics, The Chinese University of Hong Kong
11:40 – 12:00 <i>Organizers announcements on issues related to the meeting</i>	
Lunch	12:00 – 2:30

Afternoon session	<p>Chair: Murray T. Batchler Focus: Exactly solvable models and cold atoms</p>
	<p>2:30 – 3:15 <i>Cold atoms making multi-component exactly solvable model hot</i> You-Quan Li, Zhejiang Institute of Modern Physics, Zhejiang University</p>
	<p>3:15 – 3:45 <i>A description of the Hubbard model on both the square and 1D lattices consistent with its global $[SO(4) \times U(1)]/Z_2$</i> José M. P. Carmelo, Department of Physics, University of Minho</p>
	<p>3:45 – 4:25 Coffee break and informal discussions</p>
	<p>4:25 – 5:10 <i>Spectral function and dynamical structure factor of the 1D-Hubbard model</i> Pedro D. Sacramento, Departamento de Física and CFIF, Instituto Superior Técnico, Universidade Técnica de Lisboa</p>
	<p>5:10 – 6:00 Informal discussion session</p>
Evening	<p>6:00 Departure to Regal Riverside Hotel</p>

Saturday, June 21, 2008

Morning session	8:00 Departure from Regal Riverside Hotel
	8:30 Light breakfast, Ground Floor, Science Centre North Block
	Chair: Jian-Hui Dai Focus: Integrable models
	9:00 – 9:45 <i>Non-linear differential equations for correlation functions of Fermi gas</i> Paul B. Wiegmann , Department of Physics, The University of Chicago
	9:45 – 10:15 <i>Paired state in an integrable spin-1 boson model</i> Jun-Peng Cao , Institute of Physics, Chinese Academy of Sciences
	10:15 – 10:45 Coffee break and informal discussions
	Chair: You-Quan Li Focus: Cold atoms, experiments
	10:45 – 11:30 <i>Ultracold atoms in optical resonators</i> Jonas Larson , NORDITA
11:30 – 12:15 <i>Single atom detection and the measurement of the second order correlation function</i> José Viana-Gomes , Centre of Physics, University of Minho	
Lunch	12:15 – 2:30

Afternoon session	<p>Chair: Paul B. Wiegmann Focus: Correlated systems</p>
	<p>2:30 – 3:15 <i>Multiscale functional renormalization group approach to models for strongly correlated electrons</i> David Campbell, Department of Physics, Boston University</p>
	<p>3:15 – 4:00 <i>Quantum quenches in the Luttinger and other simple integrable models</i> Miguel A. Cazalilla, Centro de Física de Materiales, Centro Mixto CSIC-UPV</p>
	<p>4:00 – 4:30 Coffee break and informal discussions</p>
	<p>Chair: Miguel A. Cazalilla Focus: Correlated systems</p>
	<p>4:30 – 5:15 <i>Atom pair tunneling in optical lattices</i> Jiu-Qing Liang, Institute of Theoretical Physics, Shanxi University</p>
	<p>5:15 – 5:45 <i>Exact solutions for the solvable models with open boundaries</i> Guang-Liang Li, Department of Applied Physics, Xi'an Jiaotong University</p>
	<p>5:45 – 6:00 Informal discussion session</p>
Evening	<p>6:00 Departure for the Banquet 7:00 – 10:00 Banquet</p>

Sunday, June 22, 2008

Morning session	8:00 Departure from Regal Riverside Hotel
	8:30 Light breakfast, Ground Floor, Science Centre North Block
	Chair: Guang-Shan Tian Focus: Entanglement in fermionic systems
	9:00 – 9:45 <i>Exact results for entanglement scaling at Fermionic quantum phase transitions</i> Henrik Johannesson , Department of Physics, University of Gothenburg
	9:45 – 10:15 <i>Entanglement and phase separation of two species of fermions trapped in a 1D optical lattice</i> Shi-Jian Gu , Department of Physics, The Chinese University of Hong Kong
	10:15 – 10:45 Coffee break and informal discussions
	Chair: Pedro D. Sacramento Focus: On exact solutions
	10:45 – 11:15 <i>One exact solution of G-P equation and it's application</i> Wei-Dong Li , Institute of Theoretical Physics and Department of Physics, Shanxi University
11:15 – 11:45 <i>Ground state properties of 1D Fermionic TG gas in a split trap</i> Bo-Bo Wei , Department of Physics, The Chinese University of Hong Kong	
Lunch	12:20 – 2:00
Afternoon	Excursion