



The Abdus Salam  
International Centre  
for Theoretical Physics  
50th Anniversary 1964–2014



## Conference on Field Theory Methods in Low-Dimensional Strongly Correlated Quantum Systems

**25 – 29 August 2014**

**Miramare, Trieste, Italy**

The Abdus Salam International Centre for Theoretical Physics, is organizing a *Conference on Field Theory Methods in Low-Dimensional Strongly Correlated Quantum Systems* to be held from 25 to 29 July 2014.

*One and two dimensional strongly correlated quantum systems continue to be an exciting research area in both condensed matter and cold atom physics. Field theory methods are a key tool in many theoretical approaches to low dimensional systems. The conference will focus on the application of field theory methods to strongly correlated, low dimensional systems in solids (chains, ladders and quasi-2D materials) as well as in trapped, ultra- cold atoms. Key advances that have been achieved in recent years include the development of new methods to determine dynamical response functions, the experimental realization (combined with full, quantitative theoretical descriptions) of paradigmatic models of quantum phase transitions, confinement and dynamical cross-over, and the development of theoretical approaches that finally permit the description of effects due to spectral nonlinearity in one dimensional metals.*

*Topics covered by the conference include:*

- ♦ Nonlinear Luttinger Liquids
- ♦ Dynamics quasi-1D compounds
- ♦ Impurities and disorder in quantum spin chains and cold atoms
- ♦ Fluctuation-driven instabilities of correlated fermions
- ♦ Dynamics of ultra-cold atomic gases
- ♦ Integrable and near-integrable systems

### **Participation**

Scientists and students from all countries which are members of the United Nations, UNESCO or IAEA may attend the Conference. As it will be conducted in English, participants should have an adequate working knowledge of this language. Although the main purpose of the Centre is to help research workers from developing countries, through a programme of training activities within a framework of international cooperation, students and post-doctoral scientists from advanced countries are also welcome to attend.

As a rule, travel and subsistence expenses of the participants should be borne by the home institution. Every effort should be made by candidates to secure support for their fare (or at least half-fare). However, limited funds are available for some participants who are nationals of, and working in, a developing country, and who are not more than 45 years old. Such support is available only for those who attend the entire activity. **There is no registration fee.**

### **HOW TO APPLY FOR PARTICIPATION**

The Online Application can be accessed at the activity website: <http://agenda.ictp.it/smr.php?2601>. Comprehensive instructions will guide you step-by-step on how to fill out and submit the application form. Kindly send all file attachments in Word or Acrobat format.

**Secretariat:** Ms. Rosa del Rio (smr 2601)

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ICTP Home Page: <http://www.ictp.it>

### **Organizers**

**Fabian H.L. Essler**  
(Oxford University)

**Thierry Giamarchi**  
(University of Geneva)

**Leonid I. Glazman**  
(Yale University)

**David A. Tennant**  
(Oak Ridge National Lab)

### **Local Organizer**

**Vladimir Kravtsov**  
(ICTP, Trieste, Italy)

### **List of Invited Speakers**

B. Altshuler (Columbia)  
M.J. Bhaseen (King's College)  
J.S. Caux (Amsterdam)  
A. Chubukov (Madison)  
R. Coldea (Oxford)  
P. Coleman (Rutgers)  
E. Demler (Harvard)  
A. Green (London)  
V. Gritsev (Fribourg)  
V. Gurarie (Boulder)  
C. Hooley (St Andrews)  
M. Khodas (Iowa)  
G. Mussardo (SISSA)  
B. Lake (Berlin)  
L. Ioffe (Paris)  
P.D. Johnson (BNL)  
S. Kivelson (Stanford)\*  
I. Lerner (Birmingham)  
R.M. Konik (BNL)  
A.A. Nersesyan (ICTP)  
T.M. Rice (ETH)\*  
G. Shlyapnikov (Orsay)  
O. Starykh (Utah)  
J. Tranquada (BNL)  
A. Tsvelik (BNL)  
P. Wiegmann (Chicago)\*  
I. Zaliznyak (BNL)  
A. Zheludev (ETH)

\* To be confirmed

**DEADLINE**  
**June 8, 2014**