

Conference on Fractionalization and Emergent Gauge Fields in Quantum Matter



4 - 8 December 2023
An ICTP Meeting
Trieste, Italy

Further information:

<http://indico.ictp.it/event/10168/>

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The conference aims to bring together communities working on quantum fluids such as spin liquids, unconventional superconductors, and fractional quantum Hall states where emergent gauge fields, fractionalization, and topological order, all of which find their root in the RVB paradigm, play the pivotal role.

Founded nearly fifty years ago, the concept of resonating valence bonds (RVBs) for Mott insulators established a paradigm which branched out throughout correlated electron systems and adjacent fields. Looking at the frontier of contemporary condensed matter physics, several directions of quantum fluid states have surfaced where emergent gauge fields, fractionalization, and topological order, all of which find their root in the RVB paradigm, play the pivotal role. It spans across a plethora of topics as diverse as spin liquids, unconventional superconductors, and fractional quantum Hall effect. In this conference, we aim at bringing these communities together, using the RVB paradigm as the common thread between them. As such, we aim at reaching an interactive exchange between those different subfields, and thus a stimulating environment for creating new ideas. Keeping in mind the current trends, we plan to cover the following exciting directions:

Topics:

- Kitaev Spin Liquids – models and materials
- Pyrochlore magnets
- Cuprate Superconductors
- Sachdev-Ye-Kitaev (SYK) model
- Kagome magnets
- Fractional Quantum Hall effect and Chiral spin liquids

How to apply:

Online application:

<http://indico.ictp.it/event/10168/>

Female scientists are encouraged to apply.

Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries.

There is no registration fee.

Directors:

Y. IQBAL, IIT Madras, India
S. SACHDEV, Harvard University, USA
R. THOMALE, University of Würzburg, Germany

Scientific Advisor:

G. BASKARAN, IIT Madras, India

Local Organiser:

M. DALMONTE, ICTP

Speakers:

F. ASSAAD, University of Würzburg, Germany
L. BALENTS, University of California Santa Barbara, USA
S. BANERJEE, IISc Bangalore, India
E. BASCONES, ICMM, Spain
F. BECCA, University of Trieste, Italy
S. BHATTACHARJEE, ICTS Bangalore, India
C. BROHLM, Johns Hopkins University, USA
A. CHUBUKOV, University of Minnesota, USA
A. COIMBATORE BALRAM, IMSc Chennai, India
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S. HARAVIFARD, Duke University, USA
D. JOSHI, TIFR-Hyderabad, India
M. H. JULIEN, LNCMI Grenoble, France
R. KAUL, Penn State University, USA
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G. KHALIULLIN, MPIKF Stuttgart, Germany
Y.-B. KIM, University of Toronto, Canada
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P. MENDELS, LPS Orsay, France
Z. MENG, The University of Hong Kong, Hong Kong
F. MILA, EPFL, Switzerland
R. MOESSNER, MPIPKS Dresden, Germany
S. NAGLER, ORNL, USA
N. PERKINS, University of Minnesota, USA
F. POLLMANN, TU Munich, Germany
J. REUTHER, Freie University Berlin, Germany
H. RØNNOW, EPFL, Switzerland
A. SANDVIK, Boston University, USA
L. SAVARY, ENS Lyon, France
M. SCHEURER, University of Stuttgart, Germany
U. SCHOLLWÖCK, LMU Munich, Germany
A. SEN, IACS Kolkata, India
K. SENGUPTA, IACS Kolkata, India
O. STARYKH, University of Utah, USA
H. TAKAGI, MPIKF Stuttgart, Germany
S. TREBST, University of Cologne, Germany
M. VOJTA, TU Dresden, Germany
H. YAO, Tsinghua University, China
M. YE, University of Utah, USA
Y. ZHANG, Johns Hopkins University, USA

Deadlines:

30 June 2023

For applicants requesting financial and/or visa support

31 August 2023

For all other applicants



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