



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



School and Workshop on Exotic Quantum Phases in Equilibrium and Driven Matter

DESCRIPTION:

This School and Workshop explores exotic quantum phases in equilibrium and driven matter, focusing on quantum spin liquids, spin-orbit-coupled materials, experimental probes, and nonequilibrium control via Floquet engineering and ultrafast dynamics.

MORE DETAILS:

The program combines pedagogical lectures and research talks covering fractionalization and topological order, experimental probes of quantum spin liquids, candidate materials with strong spin-orbit coupling, and microscopic modeling. It further addresses nonequilibrium phases in driven and synthetic quantum matter, including Floquet engineering, nonlinear spectroscopy, and quantum state preparation, alongside modern theoretical and numerical methods.

TOPICS:

- General introduction to quantum spin liquids: fractionalization, topological order, and phase classification
- Experimental probes of quantum spin liquids
- Candidate quantum materials and their microscopic models
- Exotic phases in driven matter Synthetic quantum matter and its nonequilibrium aspects
- Theoretical and numerical approaches Quantum state preparation and control

SPEAKERS:

P. Armitage
Johns Hopkins University, USA
F. Assaad
University of Würzburg, Germany
L. Balents
UC Santa Barbara, USA
C. Batista
University of Tennessee, USA
S. Bhattacharjee
ICTS, India
C. Broholm
Johns Hopkins University, USA
C. Castelnovo
University of Cambridge, UK
N. Chepiga
TU Delft, Netherlands
A. Coldea
University of Oxford, UK
R. Coldea
University of Oxford, UK
K. Damle
TIFR, India
R. Egger
University of Düsseldorf, Germany
R. Fazio
ICTP Trieste, Italy
K. Hallberg
Bariloche Atomic Center and IB, Argentina
S. Haravifard
Duke University, USA
H. Jin
ShanghaiTech University, China

L. Jaubert
CNRS, France
A. Keselman
Technion IIT, Israel
I. Kézsmárki
University of Augsburg, Germany
M. Kiselev
ICTP, Italy
S.B. Lee
KAIST, South Korea
E. Lhotel
CNRS, France
T. McQueen
Johns Hopkins University, USA
F. Mila
EPFL, Switzerland
A. Paramekanti
University of Toronto, Canada
D. Pejaković
Moore Foundation, USA
K. Penc
Wigner Research Centre for Physics, Hungary
R. G. Pereira
IIP-UFRN, Brazil
N. Perkins
University of Minnesota, USA
S. Petit
CNRS, France
D. Poilblanc
CNRS, France
S. Rachel
University of Melbourne, Australia

J. Rau
University of Windsor, Canada
A. Scheie
Los Alamos National Laboratory, USA
U. Seifert
University of Cologne, Germany
N. Shannon
OIST, Japan
K. Shtengel
UC Riverside, USA
O. Starykh
University of Utah, USA
L. B. Steren
CNEA-CONICET, Argentina
S. Trebst
University of Cologne, Germany
V. Tripathi
TIFR, India
J. Vidal
CNRS & Sorbonne University, France
M. Vojta
TU Dresden, Germany
A. Wietek
MPI-PKS, Germany
S. Wilson
UC Santa Barbara, USA
K. Wohlfeld
University of Warsaw, Poland
A. Zheludev
ETH Zurich, Switzerland



13 - 24 July 2026



**IIT Madras in Zanzibar, Bweleo,
Zanzibar United Republic of Tanzania**



**Deadline:
1 April 2026**

DIRECTORS:

Y. Iqbal, Indian Institute of Technology Madras, India
A. Nevidomskyy, Rice University, Houston, USA
B. Gaulin, McMaster University, Hamilton, Canada
C. D. Cabra, La Plata University, La Plata, Argentina
J. Knolle, Technische Universität Munich, Germany

LOCAL ORGANISER:

A. Scardicchio, ICTP, Italy

FURTHER INFORMATION:

E-mail: smr4195@ictp.it

Web: <http://indico.ictp.it/event/11121/>

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.

