



ACCADEMIA NAZIONALE DEI LINCEI
CENTRO LINCEO INTERDISCIPLINARE «BENIAMINO SEGRE»

Workshop

**QUANTUM TRANSPORT:
DISORDER, INTERACTIONS AND INTEGRABILITY**

26 – 27 JANUARY 2023

Scientific committee: Carlo DI CASTRO (Linceo, Sapienza Università di Roma), Alessandro GIULIANI (Centro Linceo Interdisciplinare, RomaTre University)

PROGRAM

The workshop is part of the activities of the Centro Linceo Interdisciplinare «Beniamino Segre» and has the goal to put together theoretical and mathematical physicists working on different aspects of quantum transport with different approaches (including Quantum Field Theory, Conformal Field Theory, gauge theories, Eigenstate Thermalization Hypothesis, Generalized Gibbs Ensembles, spectral theory, KAM theory, dynamical systems, integrable systems, quantum quenches) and favor a constructive exchange of ideas on topics like Many Body Localization, universality of the transport coefficients in the presence of interactions and disorder, and the role of integrability in the out-of-equilibrium properties of the system.

Thursday 26 January

Session 1

14.30 Welcoming remarks

14.35 Denis BERNARD (ENS, Paris): *The Quantum SSEP and the emergence of free probability in noisy mesoscopic systems*

15.25 Pasquale CALABRESE (SISSA, Trieste): *The quantum Mpemba effect and entanglement asymmetry*

16.15 COFFEE BREAK

16.45 Joel MOORE (UC, Berkeley): *Dynamics in integrable and non-integrable low-dimensional quantum systems*

17.35 Marko ZNIDARIC (University of Ljubljana): *Relaxation in local many-body Floquet systems*

Friday 27 January

Session 2

- 9.30 Dmitry ABANIN (University of Geneva): *Influence functionals, temporal entanglement, and quantum many-body dynamics*
- 10.20 Wojciech DE ROECK (KU, Leuven): *Rigorous results on the many-body-localization avalanche model*
- 11.10 COFFEE BREAK
- 11.40 Antonello SCARDICCHIO (ICTP, Trieste): *Localization and melting of interfaces in the two-dimensional quantum Ising model*
- 12.30 LUNCH BREAK

Session 3

- 14.30 Carlo DI CASTRO (Linco, Sapienza Università di Roma): *New quantum criticality for the strange metal and Planckian behavior in high temperature superconductors*
- 15.20 Vieri MASTROPIETRO (Università di Milano): *Quantum transport and small divisors*
- 16.10 *Round table and concluding remarks*

This workshop is organised with the support of the University of RomaTre

ROMA - PALAZZO CORSINI - VIA DELLA LUNGARA, 10
Secretariat of the workshop: centrolinco@linco.it - <http://www.linco.it>

Every information concerning the program and the registration to the workshop is available at: <https://www.linco.it/it/manifestazioni/quantum-transport-disorder-interactions-and-integrability>
In compliance with the limitations imposed for the Covid-19 emergency, the number of seats in the hall will be limited (see: <https://www.linco.it/it/news/misure-fronteggiare-lemergenza-epidemiologica>).

Please report your participation to the secretariat of the workshop
Until 10 am, access is also possible from Lungotevere della Farnesina, 10

The works can also be followed in streaming at <https://www.linco.it/it/live-video>