

Quantum simulation of gravitational problems on condensed matter analog models

Report of Contributions

Contribution ID: 4

Type: **not specified**

Opening

Monday, 19 June 2023 09:30 (10 minutes)

Contribution ID: 5

Type: **not specified**

Welcome by the ECT* Director

Monday, 19 June 2023 09:40 (20 minutes)

Presenter: AARTS, Gert (Swansea University and ECT*)

Contribution ID: 6

Type: **not specified**

Quantum Detection of Unruh Radiation in BEC

Monday, 19 June 2023 10:00 (40 minutes)

Presenter: UNRUH, William George (ucb and Texa A&M)

Contribution ID: 7

Type: **not specified**

Quantum Fluctuations in Gravity: Gravitational Cats and Graviton Noise

Monday, 19 June 2023 11:10 (40 minutes)

Presenter: HU, Bei-Lok (University of Maryland)

Contribution ID: 8

Type: **not specified**

Spontaneous Hawking radiation in a BEC and analogue cosmological particle creation in a fluid of light

Monday, 19 June 2023 11:50 (30 minutes)

Presenter: STEINHAEUER, Jeff (Technion)

Contribution ID: 9

Type: **not specified**

Progress update on experiments with fluids of light in Paris

Monday, 19 June 2023 14:30 (30 minutes)

Presenter: JACQUET, Maxime (Sorbonne University)

Contribution ID: **10**

Type: **not specified**

Self-consistent analogue gravity with vortices

Monday, 19 June 2023 15:00 (30 minutes)

Presenter: SOLNYSHKOV, Dmitry (University Clermont Auvergne)

Contribution ID: 11

Type: **not specified**

Waves amplification and quantum entanglement from rotation

Monday, 19 June 2023 15:30 (30 minutes)

Presenter: BRAIDOTTI, Maria Chiara (university of Glasgow)

Contribution ID: 12

Type: **not specified**

Quasinormal Mode Oscillations of Optical Solitons

Monday, 19 June 2023 16:30 (30 minutes)

Presenter: KOENIG, Friedrich (University of St Andrews)

Contribution ID: 13

Type: **not specified**

The double analytic signal in pulse propagation equations

Monday, 19 June 2023 17:00 (30 minutes)

Presenter: Dr BERMUDEZ, David (Department of Physics, Cinvestav)

Contribution ID: 14

Type: **not specified**

TBA

Tuesday, 20 June 2023 09:00 (30 minutes)

Presenter: WEINFURTNER, Silke (University of Nottingham)

Contribution ID: 15

Type: **not specified**

Observation of finite temperature false vacuum decay in BEC - exp

Tuesday, 20 June 2023 10:00 (30 minutes)

Presenter: FERRARI, Gabriele (University of trento, Italy)

Contribution ID: 16

Type: **not specified**

Observation of finite temperature false vacuum decay in BEC - theo

Tuesday, 20 June 2023 09:30 (30 minutes)

Presenter: MOSS, Ian (Newcastle University)

Contribution ID: 17

Type: **not specified**

Quantum field simulator for dynamics in curved spacetime

Tuesday, 20 June 2023 16:30 (30 minutes)

Presenter: OBERTHALER, Markus

Contribution ID: 18

Type: **not specified**

Quantum catastrophes and Near Horizon Physics in a BEC

Friday, 23 June 2023 09:00 (15 minutes)

Presenter: FARRELL, Liam (McMaster University)

Contribution ID: 19

Type: **not specified**

Analogue models of pre-heating and the back-reaction effect

Tuesday, 20 June 2023 11:30 (30 minutes)

Presenter: BUTERA, salvatore (University of Glasgow)

Contribution ID: 20

Type: **not specified**

Simulating the early universe using a BEC

Tuesday, 20 June 2023 14:30 (30 minutes)

Presenter: WESTBROOK, Chris (Laboratoire Charles Fabry de l'Institut d'Optique)

Contribution ID: 21

Type: **not specified**

CES state and time crystals

Wednesday, 21 June 2023 11:20 (40 minutes)

Primary author: MUÑOZ DE NOVA, Juan Ramón (Universidad Complutense de Madrid)

Co-author: SOLS, Fernando (Universidad Complutense de Madrid)

Presenters: SOLS, Fernando (Universidad Complutense de Madrid); MUÑOZ DE NOVA, Juan Ramón (Universidad Complutense de Madrid)

Contribution ID: 22

Type: **not specified**

Measures of entanglement in BEC analogues of black holes

Tuesday, 20 June 2023 11:00 (30 minutes)

Presenter: PAVLOFF, Nicolas (universite Paris Saclay)

Contribution ID: 23

Type: **not specified**

Cosmological horizons radiate

Tuesday, 20 June 2023 15:00 (30 minutes)

Presenter: LEONHARDT, Ulf

Contribution ID: 24

Type: **not specified**

Black hole superradiance: a portal to ultralight dark matter

Tuesday, 20 June 2023 15:30 (30 minutes)

Presenter: PANI, Paolo (Sapienza University of Rome)

Contribution ID: 25

Type: **not specified**

Welcome to the special day in memory of Renaud Parentani

Wednesday, 21 June 2023 09:00 (30 minutes)

Presenter: CARUSOTTO, Iacopo (INO-CNR BEC Center, Trento)

Contribution ID: 26

Type: **not specified**

Quantum Equilibrium Propagation and some memories of Renaud Parentani

Wednesday, 21 June 2023 09:30 (30 minutes)

Presenter: MASSAR, Serge (Université libre de Bruxelles)

Contribution ID: 27

Type: **not specified**

Renaud's Horizons

Wednesday, 21 June 2023 10:00 (40 minutes)

Presenter: JACOBSON, Ted (Univ of Maryland-College Park)

Contribution ID: 28

Type: **not specified**

Various contriutions – Finazzi, Florent Michel, ...

Wednesday, 21 June 2023 14:40 (50 minutes)

Presenter: VARIOUS

Contribution ID: 29

Type: **not specified**

Nonlocal Field Theory in Ultracold Gases: The Case of Dipolar Hawking Radiation

Wednesday, 21 June 2023 14:00 (40 minutes)

Presenter: FISCHER, Uwe R. (Seoul National University)

Contribution ID: **30**

Type: **not specified**

Acoustic Black Hole Lasers

Wednesday, 21 June 2023 16:00 (30 minutes)

Presenter: COUTANT - ONLINE, Antonin

Contribution ID: 31

Type: **not specified**

Analogue gravity as a toy model of emergent spacetime

Wednesday, 21 June 2023 16:30 (30 minutes)

Presenter: LIBERATI, Stefano (SISSA)

Contribution ID: 32

Type: **not specified**

The dynamical Casimir effect in Bose Einstein condensates: the breathing ring

Tuesday, 20 June 2023 17:00 (30 minutes)

Presenter: PAROLA, Alberto (Universita' dell'Insubria, Como, Italy)

Contribution ID: 33

Type: **not specified**

Probing transcritical horizons in 1D open channel water flows

Thursday, 22 June 2023 09:00 (30 minutes)

Presenter: ROBERTSON, Scott (Laboratoire de l'Accélérateur Linéaire, Orsay)

Contribution ID: 34

Type: **not specified**

Looking for the black hole leser effect in interfacial hydrodynamics

Thursday, 22 June 2023 09:30 (30 minutes)

Presenter: BOSSARD, Alexis (Institut Pprime)

Contribution ID: 35

Type: **not specified**

Bose-Einstein Condensates for the simulation and detection of gravitational effects

Thursday, 22 June 2023 10:00 (30 minutes)

Presenter: FUENTES, Ivette (University of Southampton and Keble College, Oxford)

Contribution ID: 36

Type: **not specified**

Phonon-based quantum detection schemes for dark matter exploration

Thursday, 22 June 2023 16:30 (15 minutes)

Presenter: FERNANDEZ MELENDEZ, Hector Antonio (University of Southampton)

Contribution ID: 37

Type: **not specified**

Gravity and the superposition principle

Friday, 23 June 2023 10:15 (15 minutes)

Presenter: CULETU, Hristu

Contribution ID: **38**

Type: **not specified**

Kinetic theory approach to acoustic horizons

Thursday, 22 June 2023 11:30 (30 minutes)

Presenter: MANNARELLI, Massimo (INFN - LNGS)

Contribution ID: 39

Type: **not specified**

Shear viscosity to entropy density ratio in gravity analogue models

Thursday, 22 June 2023 12:00 (15 minutes)

Presenter: TRABUCCO, Silvia

Contribution ID: 40

Type: **not specified**

Information Recovery from Black Holes - online

Thursday, 22 June 2023 14:30 (30 minutes)

Presenter: KUMAR, Prem (Swansea University)

Contribution ID: 41

Type: **not specified**

Information Recovery from Black Holes

Thursday, 22 June 2023 15:00 (15 minutes)

Presenter: LEGRAMANDI, Andrea (Trento university)

Contribution ID: 42

Type: **not specified**

Optomechanical Analogues for Gravitationally Induced Decoherence and Entanglement

Thursday, 22 June 2023 11:00 (30 minutes)

Presenter: BLENCOWE, Miles (Dartmouth College)

Contribution ID: 43

Type: **not specified**

Analogue tachyons in superconducting circuits

Thursday, 22 June 2023 12:15 (15 minutes)

Presenter: KATAYAMA, Haruna (Hiroshima University)

Contribution ID: 44

Type: **not specified**

A cold-atom analogue of gravitational fermion production. Topological phases at the boundary of an expanding universe

Thursday, 22 June 2023 16:15 (15 minutes)

Presenter: FULGADO-CLAUDIO, Carlos (Instituto de Física Teórica (IFT UAM-CSIC))

Contribution ID: 45

Type: **not specified**

Superradiant phononic emission from the analog spin ergoregion of a two-component Bose-Einstein condensate

Friday, 23 June 2023 09:30 (15 minutes)

Presenter: BERTI, Anna (University of Trento, Italy)

Contribution ID: 46

Type: **not specified**

Analog Hawking radiation of massive modes in a coherently coupled Bose mixture

Friday, 23 June 2023 09:15 (15 minutes)

Presenter: FERNANDES, Lennart (University of Antwerp)

Contribution ID: 47

Type: **not specified**

Evolution of entanglement in analogue preheating experiment

Friday, 23 June 2023 09:45 (15 minutes)

Presenter: MICHELI, Amaury (IJCLab, France / IAP, France)

Contribution ID: 48

Type: **not specified**

Prize Ceremony

Friday, 23 June 2023 12:00 (30 minutes)

Contribution ID: 49

Type: **not specified**

Round table and Wrap Up

Friday, 23 June 2023 14:00 (1 hour)

Contribution ID: 50

Type: **not specified**

Black hole mirages in Weyl semimetals

Friday, 23 June 2023 10:00 (15 minutes)

Presenter: HALLER, Andreas

Contribution ID: 51

Type: **not specified**

Quantum correlations across the horizon in acoustic and gravitational black holes

Thursday, 22 June 2023 15:15 (30 minutes)

Presenter: FABBRI, Alessandro

Contribution ID: 52

Type: **not specified**

Closing

Wednesday, 21 June 2023 17:00 (30 minutes)

Presenter: CARUSOTTO, Iacopo (INO-CNR BEC Center, Trento)

Contribution ID: 53

Type: **not specified**

TBA

Presenter: BANDYOPADHYAY, Soumik (Pitaevskii BEC Center, INO-CNR and Università di Trento)

Contribution ID: 54

Type: **not specified**

Quantum simulation and out-of-equilibrium dynamics of the Sachdev–Ye–Kitaev model

Friday, 23 June 2023 10:30 (30 minutes)

Presenter: UHRICH, Philipp (Pitaevskii BEC Center, INO-CNR and Università di Trento)

Contribution ID: 55

Type: **not specified**

**General public event on "Modelli Analoghi di
Gravità" – in collaboration with AISF (Associazione
Italiana Studenti di Fisica) – in italian**

Tuesday, 20 June 2023 21:00 (2 hours)

Contribution ID: 56

Type: **not specified**

Analogue QFT simulators beyond the linear regime

Friday, 23 June 2023 11:00 (15 minutes)

Presenter: Dr ERNE, Sebastian