

**New trends in complex
quantum systems dynamics
2022**

Report of Contributions

Contribution ID: 1

Type: **not specified**

Opening

Monday 20 June 2022 09:00 (30 minutes)

Presenter: RICO ORTEGA, Enrique (Basque Country Univ UPV/EHU & Ikerbasque / Spain)

Contribution ID: 2

Type: **not specified**

CERN Quantum Technology Initiative

Monday 20 June 2022 09:30 (30 minutes)

Presenter: VALLECORSA, Sofia (CERN)

Contribution ID: 3

Type: **not specified**

Digital quantum simulation of non-abelian gauge theories using programmable Rydberg qudits

Monday 20 June 2022 10:00 (30 minutes)

Presenter: GONZALEZ CUADRA, Daniel

Contribution ID: 4

Type: **not specified**

Topological Properties of Dipolar Quantum Simulators

Monday 20 June 2022 10:30 (30 minutes)

Presenter: BARBIERO, Luca

Contribution ID: 5

Type: **not specified**

Data mining the many-body problem - from universal behaviour to Kolmogorov complexity

Monday 20 June 2022 11:30 (30 minutes)

Presenter: DALMONTE, Marcello (ICTP, Trieste, Italy)

Contribution ID: 6

Type: **not specified**

A randomised measurement toolbox for Rydberg quantum technologies

Monday 20 June 2022 12:00 (30 minutes)

Presenter: NOTARNICOLA, Simone

Contribution ID: 7

Type: **not specified**

Interacting Topological Insulators and their connection to high-energy physics

Monday 20 June 2022 12:30 (30 minutes)

Presenter: TIRRITO, Emanuele

Contribution ID: 8

Type: **not specified**

LONG-RANGE QUANTUM ISING MODELS

Monday 20 June 2022 14:00 (30 minutes)

Presenter: BERMÚDEZ, Alejandro

Contribution ID: 9

Type: **not specified**

Extracting the local complexity of quantum dynamics using machine learning

Monday 20 June 2022 14:30 (30 minutes)

Presenter: LENARČIČ, Zala (Jozef Stefan Institute)

Contribution ID: **10**

Type: **not specified**

Cost and routing in Continuous Variables quantum

Monday 20 June 2022 15:00 (30 minutes)

Presenter: CENTRONE, Federico

Contribution ID: 11

Type: **not specified**

Quantum B tagging for B-meson factories

Monday 20 June 2022 15:30 (30 minutes)

Presenters: GLAZOV, Alexander (BELLE (BELLE II Experiment)); GLAZOV, Alexander (DESY)

Contribution ID: 12

Type: **not specified**

Quantum computation and quantum simulations with trapped Ca^+ ions

Tuesday 21 June 2022 09:30 (30 minutes)

Presenter: BLATT, Rainer (UIBK & IQOQI, Innsbruck, Austria)

Contribution ID: 13

Type: **not specified**

Photon-Instanton Collider Implemented by a Superconducting Circuit: Splitting a Single Photon

Tuesday 21 June 2022 10:00 (30 minutes)

Presenter: GOLDSTEIN, Moshe

Contribution ID: 14

Type: **not specified**

Analog Quantum Simulation of Topological Lattice Models with a Parametric Cavity

Tuesday 21 June 2022 10:30 (30 minutes)

Presenter: DUBYNA, Dmytro

Contribution ID: **15**

Type: **not specified**

TBA

Tuesday 21 June 2022 11:30 (30 minutes)

Presenter: PICHLER, Hannes

Contribution ID: 16

Type: **not specified**

Scalable digital quantum simulation of lattice fermion

Tuesday 21 June 2022 12:00 (30 minutes)

Presenter: SILVI, Pietro

Contribution ID: 17

Type: **not specified**

Cooperative subwavelength molecular emitter arrays

Tuesday 21 June 2022 12:30 (30 minutes)

Presenter: HOLZINGER, Raphael

Contribution ID: **18**

Type: **not specified**

Magnonic cavities based on magnetic textures

Tuesday 21 June 2022 14:00 (30 minutes)

Presenter: MARTINEZ-PEREZ, Pepa

Contribution ID: **19**

Type: **not specified**

A Neural Network Assisted 171Yb^+ Quantum Magnetometer

Tuesday 21 June 2022 14:30 (30 minutes)

Presenter: BAN, Yue

Contribution ID: 20

Type: **not specified**

Benchmarking experimental quantum computation: rigorous noise analysis in the simulation of dissipative collective effects

Tuesday 21 June 2022 15:00 (30 minutes)

Presenter: CATTANEO, Marco

Contribution ID: **21**

Type: **not specified**

Poster session

Tuesday 21 June 2022 16:00 (1 hour)

Contribution ID: 22

Type: **not specified**

Quantum sensing enabled by spin qubits in diamond

Wednesday 22 June 2022 09:30 (30 minutes)

Presenter: JELEZKO, Fedor (Institute of Quantum Optics, Ulm University, Germany)

Contribution ID: 23

Type: **not specified**

Machine learning for the real time control of quantum devices

Wednesday 22 June 2022 10:00 (30 minutes)

Presenter: ARES, Natalia

Contribution ID: 24

Type: **not specified**

The Third Level: NV-centers, Andreev Spin Qubits and Trapped Ions

Wednesday 22 June 2022 10:30 (30 minutes)

Presenter: CERRILLO, Javier

Contribution ID: 25

Type: **not specified**

Decoherence and Thermalisation in Heavy Ion Collisions

Wednesday 22 June 2022 11:30 (30 minutes)

Presenter: SCHÄFER, Andreas (Regensburg University)

Contribution ID: 26

Type: **not specified**

Physical properties of an Abelian lattice gauge theory at finite winding density

Wednesday 22 June 2022 12:00 (30 minutes)

Presenter: STORNATI, Paolo (None)

Contribution ID: 27

Type: **not specified**

Periodically refreshed quantum thermal machines

Wednesday 22 June 2022 12:30 (30 minutes)

Presenter: PURKAYASTHA, Archak

Contribution ID: **28**

Type: **not specified**

TBA

Wednesday 22 June 2022 14:00 (30 minutes)

Presenter: DAVOUDI, Zohreh

Contribution ID: 29

Type: **not specified**

Accessing ground-state and excited-state energies in a many-body system after symmetry restoration using quantum computers

Wednesday 22 June 2022 14:30 (30 minutes)

Presenter: RUIZ-GUZMAN, Edgar-Andres

Contribution ID: **30**

Type: **not specified**

Emergent Dynamical Phases in a Periodically Driven BCS systems

Wednesday 22 June 2022 15:00 (30 minutes)

Presenter: OJEDA COLLADO, Hector Pablo

Contribution ID: **31**

Type: **not specified**

Poster session

Wednesday 22 June 2022 16:00 (1 hour)

Contribution ID: 32

Type: **not specified**

Towards Extracting the Running Coupling of (2+1)-dimensional QED on a Quantum Computer

Thursday 23 June 2022 09:30 (30 minutes)

Presenter: CLEMENTE, Giuseppe (DESY, Zeuthen, Germany)

Contribution ID: 33

Type: **not specified**

The role of dissipation in Quantum Reservoir Computing

Thursday 23 June 2022 10:00 (30 minutes)

Presenter: SANNIA, Antonio

Contribution ID: 34

Type: **not specified**

Optimal control of a quantum sensor: A fast algorithm based on an analytic solution

Thursday 23 June 2022 10:30 (30 minutes)

Presenter: BALDUCCI, Federico

Contribution ID: 35

Type: **not specified**

Simulating Quantum Field Theories on Quantum Computers in the Light Front Formalism

Thursday 23 June 2022 11:30 (30 minutes)

Presenter: GOLDSTEIN, Gary R. (Tufts University)

Contribution ID: 36

Type: **not specified**

Dissipation in superfluid transport through an atomic quantum point contact

Thursday 23 June 2022 12:00 (30 minutes)

Presenter: FABRITIUS, Philipp

Contribution ID: 37

Type: **not specified**

Minimal Time and Quantum Speed Limit for Effective Self-Similar Expansion of Bose Gases

Thursday 23 June 2022 12:30 (30 minutes)

Presenter: CHEN, Xi

Contribution ID: 38

Type: **not specified**

Optomechanical strong coupling between a single photon and a single atom

Thursday 23 June 2022 14:00 (30 minutes)

Presenter: ARGÜELLO-LUENGO, Javier

Contribution ID: 39

Type: **not specified**

Fractional resonances and prethermal states in Floquet systems

Thursday 23 June 2022 14:30 (30 minutes)

Presenter: ROMERO, Guillermo

Contribution ID: 40

Type: **not specified**

The capacitive coupling of persistent current qubits

Thursday 23 June 2022 15:00 (30 minutes)

Presenter: PINO GARCÍA, Manuel

Contribution ID: 41

Type: **not specified**

Poster session

Thursday 23 June 2022 16:00 (1 hour)

Contribution ID: 42

Type: **not specified**

Circuit QED with molecular spin qubits

Friday 24 June 2022 09:30 (30 minutes)

Presenter: LUIS, Fernando (Instituto de Nanociencia y Materiales de Aragón, CSIC - Universidad de Zaragoza, Zaragoza (Spain))

Contribution ID: 43

Type: **not specified**

Dynamical decoupling techniques and complex systems

Friday 24 June 2022 10:00 (30 minutes)

Presenter: JORGE, Casanova

Contribution ID: 44

Type: **not specified**

Spin squeezing and entanglement quantification in atomic gases

Friday 24 June 2022 10:30 (30 minutes)

Presenter: VITAGLIANO, Giuseppe

Contribution ID: 45

Type: **not specified**

Finite energy properties with MPS and QSim

Friday 24 June 2022 11:30 (30 minutes)

Presenter: BAÑULS, Mari Carmen

Contribution ID: 46

Type: **not specified**

Universality at an out of equilibrium

Friday 24 June 2022 12:00 (30 minutes)

Presenter: TAGLIACOZZO, Luca

Contribution ID: 47

Type: **not specified**

Tensor Network Simulations of Holographic Quantum Error Correction and Conformal Field Theory

Friday 24 June 2022 12:30 (30 minutes)

Presenter: STEINBERG, Matthew

Contribution ID: 48

Type: **not specified**

Towards quantum simulations with trapped-ion qudits

Friday 24 June 2022 14:00 (30 minutes)

Presenter: RINGBAUER, Martin (UIBK, Innsbruck, Austria)

Contribution ID: 49

Type: **not specified**

Multi-copy metrology with many-particle quantum states

Friday 24 June 2022 14:30 (30 minutes)

Presenter: TRENYI, Robert

Contribution ID: 50

Type: **not specified**

Uncertainty relations with the variance and the quantum Fisher information

Friday 24 June 2022 15:00 (30 minutes)

Presenter: TOTH, Geza

Contribution ID: 51

Type: **not specified**

Conference Dinner

Thursday 23 June 2022 20:30 (2 hours)