



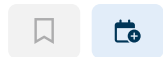
[Contributed Session](#)
[Satellite Location](#)
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Global Satellite Session - Serbia: Novel Topics in Quantum Science and Technology

11:30 am – 1:30 pm, Wednesday March 19 // Session VIR-L04 //  Virtual-Only, Virtual Room 4

Chair: Milica Pavkov-Hrvojevic

Topics: [General Physics](#); [Quantum Science](#); [Quantum Computing](#); [Flows](#)



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Simulating quantum many-body scars with Rydberg atoms

12:10 pm – 12:30 pm

Presenter: Ana Hudomal (Institute of Physics Belgrade)

Quantum many-body scarring is a form of weak ergodicity breaking, where specific initial states exhibit non-thermalizing dynamics in non-integrable systems that otherwise satisfy the eigenstate thermalization hypothesis. In this talk we will discuss how to use programmable Rydberg atom arrays to explore the interplay between scarring and quantum criticality. Contrary to expectations, recent numerical studies reveal that scarring persists across the Ising critical point in the effective PXP model, with a continuous family of scarred states spanning both sides of the phase transition. We will present experimental validation of the resulting dynamical phase diagram on QuEra's Aquila device. Additionally, we will discuss the role of the Kibble-Zurek mechanism and defect formation during the preparation of the initial state, as well as the effects of defect density and type on the scarred dynamics.

PRESENTATIONS (6)

Filter presentations



11:30 am – 11:50 am

Quantum mechanics - the next 100 years

Caslav Brukner (presenter)

11:50 am – 12:10 pm

Towards fault-tolerant quantum computing with neutral atoms

Vladan Vuletic (presenter)

12:10 pm – 12:30 pm

Simulating quantum many-body scars with Rydberg atoms

Ana Hudomal (presenter)

12:30 pm – 12:50 pm

Quantized charge flow and topological phenomena in carbon nanotubes

Ivanka Milosevic (presenter)

12:50 pm – 1:10 pm

Renormalization group techniques applied to non-stabilizerness

Petar Mali (presenter)

1:10 pm – 1:30 pm

Novel quantum phases: dipolar quantum droplets and supersolidity

Antun J Balaz (presenter)

