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VISITING PROGRAM

TSVP TALK

Spontaneous quasiparticle creation in an analogue preheating experiment

2026
TUE. **Aug. 18**

15:00–16:00

HYBRID L5D23, ZOOM

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First, I will briefly outline the motivations and concepts that underpin the analogue gravity program. Next, I will provide a detailed description of a specific experiment designed to simulate various features of the cosmological reheating era. Finally, I will present our recent experimental results from this setup, where we demonstrated the parametric creation of quasiparticle pairs from the quantum vacuum, drawing an analogy with the preheating phase of reheating.

RIKEN iTHEMS

Amaury Micheli

Amaury Micheli is a postdoctoral researcher at RIKEN iTHEMS in Wako, Japan. His research seeks evidence for the quantum nature of gravity by identifying and quantifying quantum correlations in settings where gravitational, or gravity-like, and quantum effects coexist; from the primordial inhomogeneities generated during inflation to laboratory analogues of curved spacetime. Amaury's work combines analytical field theory, numerical and semi-classical simulation, and close collaboration with experimental teams, including the observation of spontaneous pair creation in a cold-atom analogue of cosmological preheating. His research is strongly interdisciplinary, importing quantum-information tools into cosmology and testing high-energy vacuum amplification predictions in table-top experiments.

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