



Contribution ID: 282

Type: **Talk**

Quantum many-body analogue black-holes and analogue cosmology

Friday, 27 June 2025 15:55 (15 minutes)

I will discuss the existence conditions of stationary sonic black hole configurations in the presence of quantum fluctuations, assessed by computing the quantum depletion of the many-body system due to both interactions and Hawking radiation. Bogoliubov theory and the conventional neglect of backreaction in describing the analog Hawking process will thereby be validated, and the resulting limits for the experimentally attainable Hawking temperature will be explored.

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Session Classification: Friday Parallel Session F