

New aspects of Hawking radiation in analogue gravity

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Since the pioneering work of Unruh in 1981, the possibility to simulate gravitational effects with waves in fluids has attracted a lot of attention. The versatile ingredients necessary for the analogy to hold lead to many different analogue gravitational systems, implemented in contexts as various as sound waves, Bose-Einstein condensates, surface gravity waves or quantum optics. In the last decade, the field has gained a large momentum with various successful results at the experimental level. These results open new avenues of research and finer questions to address. I will discuss recent progresses in that direction, mainly on the theoretical side. I will focus on the attempts to simulate the Hawking radiation of black holes, and the exploration of some of its intricate features such as entanglement, backreaction or time-dependent effects.

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