

# Mimicking quantum field theory in curved spacetimes with classical open water channel flows

*Friday, January 24, 2025 2:30 PM (40 minutes)*

In this talk, we will make a review of the recent achievements of Analogue Gravity in interfacial hydrodynamics with the purpose of probing field theory with tabletop experiments in the laboratory. We will present our daily measurements of Hawking radiation with water waves on the top of a decelerating inhomogeneous current emulating the scattering of light waves by an analogue horizon. We will show our measurements of the greybody factor of a hydraulic black hole by sending waves inside it as well as the demonstration of interstellar travel in both directions of a wormhole in between a black hole and a white fountain horizons. Finally, we will present a classification of the flow regimes amenable to Analogue Gravity experiments both without dispersion and with dispersion akin to a quantum gravity like behavior where the Planck scale role is played by the capillary length controlled by surface tension in the aquatic analogue.

**Primary author:** Dr ROUSSEAUX, Germain (CNRS)

**Presenter:** Dr ROUSSEAUX, Germain (CNRS)