In this talk, we will present recent results concerning quantum entanglement of the Hawking radiation in an analogue black hole realized in the flow of a Bose-Einstein condensate. In particular, we will show that the system is described by a three-mode Gaussian state, giving rise to bipartite and tripartite entanglement. The latter is measured using a continuous version of the 3-tangle constructed from monogamy inequalities. We will also discuss how entanglement is affected by thermal effects and how it can be measured experimentally. These results are reported in [1].

**Figure:** Tripartite entanglement (color code, from low/blue to high/yellow entanglement) as a function of dimensionless energy (x-axis) and of the upstream Mach number $m_u$ (y-axis). The horizontal red line corresponds to the value $m_u = 0.59$ of the experimental realization [2], the light blue line to the value of maximal tripartite entanglement. The right plot shows the integral of the left plot over horizontal lines.