

Abstract Submitted  
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**Waves and Currents: Hawking radiation in the hydraulics laboratory?** GREGORY LAWRENCE, Department of Civil Engineering, University of British Columbia, SILKE WEINFURTNER, Department of Physics and Astronomy, University of British Columbia, EDMUND TEDFORD, Department of Civil Engineering, University of British Columbia, MATTHEW PENRICE, WILLIAM UNRUH, Department of Physics and Astronomy, University of British Columbia — Laboratory experiments were performed to test an analogy between Hawking radiation (the process by which black holes radiate energy) and the propagation of water waves against an adverse current. A streamlined obstacle was placed in a flume to create a region of high velocity. Long waves generated downstream of the obstacle were blocked by this region and converted to a pair of short waves. The group velocities of both the converted waves were downstream, but one of the converted waves retained an upstream phase velocity, whereas the other had a downstream phase velocity. These waves are shown to be analogous to Hawking radiation.

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