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Observation of thermal Hawking radiation and its temperature in an analogue black hole

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We study the Hawking radiation in an analogue black hole, in which sound plays the role of light. We find that the correlation spectrum of Hawking radiation agrees well with a thermal spectrum, and its temperature is given by the surface gravity. This confirms the predictions of Hawking's theory. The Hawking radiation is in the regime of linear dispersion, in analogy with a real black hole. Furthermore, the radiation inside of the analogue black hole is seen to be composed of negative-energy partners only.

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