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Imprints of black hole area quantization in gravitational waves.

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We argue that black hole area quantization, in the form predicted by Bekenstein and Mukhanov, could leave observable imprints in the gravitational-wave signal of a binary black hole merger by affecting the absorption properties of the black holes. These imprints include gravitational-wave echoes after the ringdown stage, and suppressed tidal heating during the inspiral phase. This phenomenology is within reach of future gravitatinal-wave detectors, and could be used to bound the fundamental quantum of black hole area.

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