

CGHS Moving Mirror

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1 Abstract

CGHS black holes have rightfully garnered much attention over the last few decades as the models are simplified (1+1)-dimensional versions of black hole evaporation. Their solubility has led to tractable physical insights into the radiative process. Concurrently, moving mirrors are well-known simplified (1+1)-dimensional models for black hole evaporation. We synthesize the two by finding an exact correspondence between the CGHS black hole and exponentially accelerated moving mirror. The equivalence of these two models can be seen from several matching quantities such as trajectory of the moving mirror that, in turn, corresponds to the center of the black hole; spectrum of the particle radiation; the event horizon locations and the temperatures. Furthermore, a novel derivation and understanding of the mirror power and self-force are applied to this particular moving mirror, CGHS mirror.