Title:	Unruh effect for inertial observers through vacuum correlations
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Abstract:	We study a dynamic version of the Unruh effect in a two dimensional collapse model forming a black hole. In this two-dimensional collapse model a scalar field coupled to the dilaton gravity, moving leftwards, collapses to form a black hole. There are two sets of asymptotic ($t\to\infty$) observers, around $x\to\infty$ and $x\to-\infty$. The observers at the right null infinity witness a thermal flux of radiation associated with time dependent geometry leading to a black hole formation and its subsequent Hawking evaporation, in an expected manner. We show that even the observers at left null infinity find themselves in thermal ambiance, without experiencing any change of spacetime geometry all along their trajectories. They remain as inertial observers in a flat region of spacetime where curvature tensor identically vanishes in a portion of full spacetime. These observers find the state of the quantum field in a late time thermal configuration, with exactly the same temperature as measured by the observers at right null infinity, despite being inertial in flat spacetime region throughout their history. This is very closely related to the standard Unruh effect in the flat spacetime, except for a key difference – since they are inertial throughout and have no causally connected source in the past light cone to account for what they see. The result arises from quantum correlations which extend outside the past light cone and is conceptually similar to the EPR correlations.
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