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The temperature issue in curved spacetime

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The longstanding study of quantum effects in curved spacetimes has led to stimulant connections between General Relativity, Quantum Field Theory and Thermodynamics. This connection is epitomized in the renowned effects named after Unruh and Hawking, as well as in the relevance of quantum fields in the cosmological evolution. The possibility to interpret some quantities in a thermodynamical frame is made explicit in two contexts: the semi-classical tunnelling methods (in which use of Kodama-Hayward's theory is made); and the field-theoretical response of detectors endowed with particular trajectories in curved backgrounds.

We propose to compare the results of these approaches in different scenarios, both stationary and dynamical. The concordance of results in stationary cases is challenged when more general dynamical situations are considered, giving some insights for further developments and interpretations.