General Relativity and Quantum Cosmology

Applications of the Tunneling Method to Particle Decay and Radiation from Naked Singularities

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Following recent literature on dS instability in presence of interactions, we study the decay of massive particles in general FRW models and the emission from naked singularities either associated with 4D charged black holes or with 2D shock waves, by means of the Hamilton--Jacobi tunneling method. It is shown that the two-dimensional semi-classical tunneling amplitude from a naked singularity computed in that way is the same as the one-loop result of quantum field theory.

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