Title:	Fluctuations in the stress energy tensor of spinor fields evolving in general FRW spacetimes
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Abstract:	In this work, we study quantum fluctuations in the stress energy tensor of spinor fields evolving in general Friedmann-Robertson-Walker (FRW) spacetimes. We quantify these fluctuations by the noise kernel of spinor fields. For the particular case of de Sitter spacetime, we place the spinor field in what is called the fermionic Bunch Davies vacuum and study the variation of the noise kernel with the mass of the field. We then make use of the conformal invariance of massless spinor fields and employ an equivalence that relates a massless spinor field in any given FRW spacetime with a corresponding massless spinor field in de Sitter spacetime. Using this equivalence, we study the behavior of the noise kernel of massless spinor fields in general FRW spacetimes while placing the fields in the Bunch Davies vacuum of the corresponding massless spinor field of the de Sitter spacetime. We extend this analysis to a coordinate invariant quantity which is built from the noise kernel of the field. We compare these results for spinor fields in considered spacetimes with the analogous results for scalar fields. This study helps us better understand whether the spin 1 / 2 fermionic matter remains strongly correlated in considered spacetimes leading to considerable backreaction or not.
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