Title:	Stochastic metric perturbations (radial) in gravitationally collapsing spherically symmetric relativistic star
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Abstract:	Stochastic perturbations (radial) of a spherically symmetric relativistic star, modeled by a perfect fluid in comoving coordinates for the collapse scenario are worked out using the classical Einstein–Langevin equation, which has been proposed recently. The solutions are in terms of perturbed metric potentials and their two point correlation. For the case worked out here, it is interesting to note that the two perturbed metric potentials have same magnitude, while the potentials themselves are in general independent of each other. Such a treatment is useful for building up basic theory of non-equilibrium and near equilibrium statistical physics for collapsing stars, which should be of interest towards the end states of collapse. Here we discuss the first simple model, that of non-rotating spherically symmetric dynamically collapsing relativistic star. This paves way to further research on rotating collapse models of isolated as well as binary configurations on similar lines . Both the radial and non-radial perturbations with stochastic effects would be of interest to asteroseismology, which encompassed the future plan of study.
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