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Relativistic corrections to large scale structures

Sunday, 9 September 2018 14:00 (15 minutes)

We investigate the relativistic corrections to the standard model of formation of large scale structures. In matter domination and in the Poisson gauge, we use the weak-field approximation which allows to keep compact expressions even for the one-loop bispectrum. Whereas in the Newtonian limit, the choice of gauge is marginally important as all gauge coincides, when relativistic corrections are taken into account, it matters as a change of gauge may induce a change of gravitational potential and introduce fictitious modes in the finial result for the power spectrum. It is precisely what happens in the example presented in this talk as the equivalence principle is not fulfilled in the Poisson gauge and the cancellation of the IR divergence at one-loop does not occur. We will discuss how other choices of gauge may solve this issue.

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