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Cosmology on a gravitational wave background

Thursday, 11 July 2024 17:45 (15 minutes)

There is no doubt that we live in a Gravitational Wave Background (GWB). In this talk we start from this hypothesis and show that if we take into account the energy generated by the GWB we have to extend Einstein's equations with a term $2\pi^2/\lambda^2$, where λ is the Compton wave length of the graviton of the size of the observable universe. We call this model Compton Mass Dark Energy (CMaDE). With these equations we study the corresponding cosmology and using the SimpleMC code we find that this model fits the Pantheon + BAO + CC data better than the LCDM model. Then, using the same values for the parameters, using the CLASS code we compared this model to the CMB data and found excellent agreement with the CMB and MPS profiles. We conclude that the CMaDE model is an excellent candidate to explain the accelerated expansion of the universe, without cosmological constants, extra matter or modifications of Einstein's equations. Ref: arXiv:2303.07111 and MNRAS 529, 3013, (2024).

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