

Abstract Submitted
for the SES21 Meeting of
The American Physical Society

Quantum Gravitational Corrections to Gravity during Inflation¹

LINTAO TAN, University of Florida — Primordial inflation produces a vast ensemble of cosmological scale gravitons which can affect both the force of gravity and the propagation of gravitational radiation. These effects can be studied by using the graviton self-energy to quantum correct the linearized Einstein equations. We will first give an analysis of the structure of the graviton self-energy and then present an explicit result for one loop corrections to the propagation of gravitons. Although suppressed by a minuscule loop-counting parameter, these corrections are enhanced by the square of the number of inflationary e-foldings. This makes the one loop corrections to the tensor power spectrum potentially observable, in the far future, after the full development of 21 cm cosmology.

¹This work was partially supported by the European Union's Horizon 2020 Programme under grant agreement 669288-SM-GRAV-ERC-2014-ADG; by NSF grant 1912484; and by the UF's Institute for Fundamental Theory.

Lintao Tan
University of Florida

Date submitted: 06 Sep 2021

Electronic form version 1.4