Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Observational consequences of Loop Quantum Cosmology[1] THOMAS CAILLETEAU, IGC, Penn State — I will discuss possible tests of Loop Quantum Cosmology (LQC) through cosmological perturbations and their consequences on the Cosmic Microwave background (CMB). It has been known for quite a long time that tensor perturbations are a promising way to possibly investigate the predictions of the theory. However, we have recently understood that the algebra usually assumed was in fact not correct. The requirement of anomaly-freedom for vector and scalar perturbations leads to modifications of the tensor-mode algebra. I will explain this for the two main corrections implied by LQC, namely the holonomy and inverse-triad terms. Then, I will focus on holonomy corrections in the bouncing scenario. I will explain a possible generic way to derive the anomaly-free and gauge-invariant variables. I will show that a specific scheme (the so-called mu-bar scheme), usually assumed for other reasons, naturally appears. This approach will also be briefly discussed for inverse-triads. Finally I will show some cosmological consequences of this approach (power spectrum, possible change of signature of the metric, ...) and a possible way to take into account both corrections.

[1]Supported in part by the NSF grant PHY-1205388.

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Date submitted: 10 Jan 2013 Electronic form version 1.4