Contribution ID: **40** Type: **Talk**

Chiral signatures from the Barbero–Immirzi parameter in inflationary tensor modes

Tuesday 1 July 2025 16:05 (25 minutes)

The Ashtekar connection-based approach of general relativity offers a compelling avenue for re-examining gravitational dynamics, particularly through its Hamiltonian formulation. This framework introduces the Barbero–Immirzi parameter, a factor whose role varies between classical and quantum treatments.

Classically, the Barbero–Immirzi parameter does not appear in the equations describing the propagation of gravitational waves. However, depending on the chosen quantization scheme, this parameter can crucially influence vacuum fluctuations of tensor modes during inflation, most notably by inducing chiral asymmetries.

In this talk, I will examine both classical and quantum scenarios within the context of non-minimal inflationary models, which are increasingly supported by observations. The focus will be on the behavior of propagating tensor modes and their potential imprints on the observational data.

Authors: ROSA, João Luís; NIKJOO, Mehraveh; ZLOSNIK, Tom

Presenter: NIKJOO, Mehraveh

Session Classification: Tuesday Parallel 4 - A101

Track Classification: Contributed talks