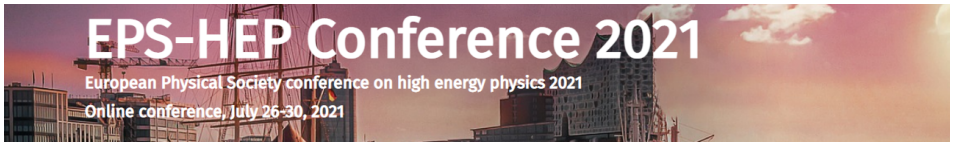

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Primordial gravitational waves revealed by a spinning axion

A fast-spinning axion can dominate the Universe at early times and generates the so-called kination era. The presence of kination imprints a smoking-gun spectral enhancement in the primordial gravitational-wave (GW) background. Current and future-planned GW observatories could constrain particle theories that generate the kination phase. Surprisingly, the viable parameter space allows for a kination era at the PeV-EeV scale and generates a peaked spectrum of GW from either cosmic strings or primordial inflation, which lies inside ET and CE windows.

First author

Peera Simakachorn

Email

peera.simakachorn@desy.de

Collaboration / Activity

Quantum Universe Cluster, UHH

Primary authors: SIMAKACHORN, Peera (UNI/TH (Uni Hamburg, Institut fuer Theoretische Physik)); SERVANT, Geraldine (T (Cosmology)); GOUTTENOIRE, Yann (T (Cosmology))

Presenter: SIMAKACHORN, Peera (UNI/TH (Uni Hamburg, Institut fuer Theoretische Physik))

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