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Primordial gravitational waves boosted by the axion

Tuesday, February 8, 2022 3:00 PM (1h 20m)

I will discuss how early dynamics of the axion can naturally induce a matter-kination era inside the standard radiation era. The matter-kination era imprints a smoking-gun gravitational-wave peak on the irreducible inflationary GW background as well as on the local/global cosmic-string gravitational-wave background, whose position depends on kination's energy scale and duration. Remarkably, the viable parameter space allows for a kination era at the MeV-EeV scale and generates a gravitational-wave peak which lies inside LISA, as well as ET, and CE sensitivity windows. Future GW observatories will thus offer a new window on axion models.

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