

# Primordial gravitational-waves boosted by the axion

This talk focuses on a matter-kination era that can occur naturally inside the standard radiation era due to axion dynamics. The matter-kination era imprints a smoking-gun GW peak on the irreducible inflationary GW background as well as on the local/global cosmic-string GW 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 GW peak which lies inside LISA, as well as ET, and CE sensitivity windows. We connect the matter-kination peak to the abundance of axion dark matter.

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