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Correlation functions of sourced gravitational waves in inflationary scalar vector models. A symmetry based approach

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We use conformal symmetry to constrain the shape of inflationary correlators in the presence of long-lived vector field perturbations. Applying conformal Ward identities, we derive general expressions, up to amplitudes and normalization factors, for the two and three point correlators in the presence of vector fields mediated by the interaction $f()$

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$$F_{\mu}F_{\mu} + \tilde{F}_{\mu}F_{\mu}$$

, where $f()$

is a suitable coupling function between the scalar and the vector field. The previous interaction allows for isotropy and parity symmetry breaking and is consistent with super horizon conformal symmetry. As an application of the conformal field theory techniques followed here, we evaluate the mixed tensor-scalar h

i and tensor-scalar-scalar h

i correlators which are interesting to look

for parity violating effects related with chiral gravitational waves. Finally, we derive consistency relations for the three point correlators obtained.

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