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Primordial correlates from Multi-point propagators

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Accurate predictions of correlators of the primordial curvature perturbation are critical for connecting inflationary models to cosmological observations. Numerical methods employing differential equations, such as the transport approach, have been extensively used to compute the evolution of these correlators.

In this talk, I will present a novel numerical implementation of the transport formalism. We use Multi-point propagators (MPPs), that link non-linearly evolved fields to their values at some earlier time.

This method recasts the direct evolution of correlators into a system of differential equations for MPPs.

We benchmark the MPP approach against the established PyTransport code across a range of models, and I will discuss the essential applications of the new method to models than can lead to enhanced fluctuations on small scales.

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