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Towards a holographic description of cosmology (II): Renormalisation of the 3D SU(N) scalar energy-momentum tensor

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In holographic cosmology, cosmological observables are described in terms of correlators of a three-dimensional boundary quantum field theory. In this talk, we study the renormalisation of the energy-momentum tensor 2 point function for 3D massless SU(N) scalar matrix field theory. We present a non-perturbative procedure to remove divergences resulting from the loss of translational invariance on the lattice, by imposing Ward identities. This will allow us to make non-perturbative predictions for the CMB power spectrum at low multipoles, assuming the holographic theory describing the very early Universe is the 3D massless SU(N) scalar matrix field theory.

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