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Emergent Scalar Field Dynamics on Curved Spacetime in Group Field Theory

Thursday 10 July 2025 10:00 (20 minutes)

Working within the relational framework of group field theories and specifically its application to cosmology, we derive the explicit solution to the GFT condensate effective dynamics including the treatment of scalar perturbations. This first step allowed us to investigate further the matter content and formulate its dynamics in the form of QFT on a curved background. This, in turn, produced additional emergent properties that the field theory possesses in comparison with the classical one, which was further mirrored at the level of the perturbation. In the latter case, we attained a modified dispersion relation for the perturbed field.

Working Group

WG5 - Connection between low-energy and high-energy quantum gravity

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Session Classification: WG5 Connection between low-energy and high-energy quantum gravity 2