Contribution ID: **85** Type: **Talk (15+5)**

# OPTIMIZATION OF THE SCHRÖDINGER-POISSON MODEL USING B-SPLINES

*Friday 5 December 2025 08:00 (20 minutes)*

Large-scale structures in the universe can be studied through N bodies interacting gravitationally. In this work, we approximate this process using a quantum dust fluid in one spatial dimension, described by the **Schrödinger-Poisson equations**. The temporal evolution of the system is calculated using B-splines within the Crank-Nicolson propagator implemented in a predictor-corrector scheme. We analyze different cosmological models and obtain the power spectrum of matter. For future improvements, we aim to reduce the calculation time and incorporate parameters that more accurately reproduce observational results.

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**Session Classification:** Theory and BSM