Aoibhinn Gallagher - The Evolution of Cosmic Voids in the Schrodinger Poisson Formalism

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We investigate the evolution of cosmic voids in the Schr\"{o}dinger-Poisson formalism, finding wave-mechanical solutions for the dynamics in a standard cosmological background with appropriate boundary conditions. We compare the results in this model to those obtained using the Zel'dovich approximation. We discuss the advantages of studying voids in general and the advantages of Schr\"{o}dinger-Poisson description over other approaches. In particular emphasizing the utility of the free-particle approximation. We also discuss a dimensionless number, similar to the Reynolds number, for this system which allows our void solutions to be scaled to systems of different physical dimensions.

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