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Dark-fluid constraints of shear-free universes

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Recent studies into the nature of dark matter and dark energy have resulted in a number of dark-fluid cosmological models. Integrability conditions arising from general irrotational fluid-flow considerations of a universe dominated by one such dark fluid will be investigated under special assumptions on the nature of the spacetime shear. Special emphasis will be placed on linearized perturbations of quasi-Newtonian and anti-Newtonian spacetimes, whereby the conditions for the existence and consistent evolution of such spacetimes in the presence of the Chaplygin gas fluid model will be derived and discussed.

Abstract Category

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