

## Contributed Talk

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**Title:** General Perturbations of LRS Class II Cosmologies with Applications to Dissipative Fluids

**Abstract:** First order perturbations of homogeneous and hypersurface orthogonal LRS (Locally Rotationally Symmetric) class II cosmologies with a cosmological constant are considered in the framework of the 1+1+2 covariant decomposition of spacetime. The perturbations, which are for a general energy-momentum tensor, include scalar, vector and tensor modes and extend some previous works where matter was assumed to be a perfect fluid. Through a harmonic decomposition the system of equations is then transformed to evolution equations in time and algebraic constraints. This is then applied to dissipative one-component fluids, and on using the simplified acausal Eckart theory, which should be a fair approximation when relaxation times are short compared to the expansion rate, the system is reduced to two closed subsystems governed by four and eight harmonic coefficients for the odd and even sectors respectively. The system is also seen to close in a simplified causal theory.