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*Covariant tensor averaging*

When applying general relativity to cosmology, one may take the point of view that one should start with a “lumpy” spacetime and average this to smooth out inhomogeneities, as opposed to postulating an FRW model from the outset. Various averaging procedures have previously been proposed but suffer from some problems, such as a lack of general covariance.

Here, a covariant procedure for averaging tensor fields on a manifold will be presented. Examples, applications and limitations will be discussed.

Based on joint work with Robert van den Hoogen and Alan Coley.