

Abstract Submitted
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FLRW Cosmology from Yang-Mills Gravity DANIEL KATZ, University of Massachusetts Lowell — We extend to basic cosmology the subject of Yang-Mills gravity - a theory of gravity based on local translational gauge invariance in flat spacetime. It has been shown that this particular gauge invariance leads to tensor factors in the macroscopic limit of the equations of motion of particles which plays the same role as the metric tensor of General Relativity. The assumption that this “effective metric” tensor takes on the standard FLRW form is our starting point. Equations analogous to the Friedman equations are derived and then solved in closed form for the three special cases of a universe dominated by 1) matter, 2) radiation, and 3) dark energy. We find that the solutions for the scale factor are similar to, but distinct from, those found in the corresponding GR based treatment.

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