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T. H. Wears* (wearsth@longwood.edu). *Lorentzian Ricci Solitons On Nilpotent Lie Groups*. Preliminary report.

We present the classification of left invariant Lorentzian metrics on two different five-dimensional, simply-connected, two-step nilpotent Lie groups and investigate the curvature properties of the resulting families of metrics, paying special attention to those metrics that are Ricci solitons and/or algebraic Ricci solitons. In particular, we give a complete classification of the Ricci soliton structures on each of the Lie groups in question, showing that in sharp contrast with left invariant Riemannian metrics on nilpotent Lie groups, a given nilpotent Lie group can support a variety of inequivalent Lorentzian Ricci solitons and that not all Ricci solitons are algebraic Ricci solitons. Time permitting, we will outline a generalization of the classifications to all odd dimensions. (Received September 16, 2014)