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Vector models of gravitational Lorentz breaking MICHAEL SEIFERT, Indiana University — Dynamical Lorentz symmetry breaking can occur when the dynamics of a tensor field cause it to take on a non-zero expectation value *in vacuo*, thereby providing one or more "preferred directions" in spacetime. Couplings between such fields and spacetime curvature will then affect the dynamics of the metric, leading to interesting gravitational effects. Bailey & Kostelecký (2006) developed a PPN-like formalism that, under certain assumptions concerning the field's couplings and stress-energy, allows for the analysis of gravitational effects in the presence of Lorentz symmetry breaking. We systematically investigate which vector models of Lorentz breaking can be successfully analyzed under the Bailey-Kostelecký formalism. Implications for the gravitational analysis of specific Lorentz-breaking vector models, including Bekenstein's "TeVeS" and Carroll *et al.*'s "sigma-model æther", are discussed.

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