Hamiltonian Constraint Analysis of Vector Theories with Spontaneous Lorentz Violation ARTURS VRUBLEVSKIS, ROBERT BLUHM, Colby College, ALAN KOSTELECKY, Indiana University, ROBERTUS POTTING, Algarve University — A Hamiltonian constraint analysis is performed on a class of field theories in which Lorentz symmetry is spontaneously broken by a vector field. Such symmetry breaking is of interest because it may occur in the context of quantum theories of gravity. For a class of such models, the vector field emerges with properties similar to the photon. The Hamiltonian constraint analysis is used to compare this class of vector theories to conventional electrodynamics.

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