Abstract Submitted
for the APR21 Meeting of
The American Physical Society

A unitary renormalizable model of composite gravitons. PETER ORLAND, Baruch College and Graduate Center, City University of New York — A four-dimensional SU(4) confining Yang-Mills field, coupled to a fundamental fermion field and a bi-fundamental scalar field, has excitations with spin 2, but no other quantum numbers. These spin-2 excitations can be light or can condense, depending upon the scalar coupling. If condensation occurs, there is a massless spin-2 Goldstone boson with (possibly weakly) broken Lorentz invariance in the effective theory. The low-lying spectrum contains additional spin-0 and spin-1 particles. We discuss how to couple these new fields to other matter fields. To our knowledge, this is the only explicit proposal for a unitary and perturbatively-renormalizable local field theory of gravity.

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Date submitted: 08 Jan 2021 Electronic form version 1.4