

Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Self-interactions in a model with composite gravitons¹ CHRISTOPHER CARONE, College of William Mary — We consider a generally covariant theory of scalars minimally coupled to an auxiliary background metric, subject to the constraint of vanishing energy-momentum tensor. Eliminating the auxiliary metric leads to a non-polynomial, metric-independent action for the scalar fields. In the limit of a large number of physical scalars, a composite, massless spin-2 state, the graviton, may be identified in a two-into-two scalar scattering process. We show that the emergent graviton's cubic self-interactions are consistent with those of Einstein's general relativity, up to higher-derivative corrections. We also demonstrate in a theory with more than one type of scalar that the composite graviton coupling is universal.

¹This work was supported by the NSF under Grant PHY-1519644.

Christopher Carone
College of William
Mary

Date submitted: 11 Jan 2018

Electronic form version 1.4