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Background-Independent Composite Gravity LUKE MRINI, JOSHUA ERLICH, AUSTIN BATZ, William Mary — We explore a background-independent model of composite gravity. The vacuum expectation value of the composite metric satisfies Einsteins equations (with corrections) as a consistency condition, and selects the vacuum spacetime. A gravitational interaction then emerges in vacuum correlation functions. The action remains diffeomorphism invariant even as perturbation theory is organized about the dynamically selected vacuum spacetime. We discuss the role of nondynamical clock and rod fields in the analysis, the identification of physical observables, and the generalization to other theories including the standard model.

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