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A universal mechanism for the emergence of gravitons from effective spin foams and lattice gravity

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Spin foams are discretized path integrals for quantum gravity based on a rigorous definition of quantum geometry. This does however lead to very complicated amplitudes, making e.g. the extraction of a continuum limit difficult. Thus, a long-standing open question was whether spin foams do describe gravity in their semi-classical and continuum limit.
The situation has changed with the recent introduction of effective spin foams, which on the one hand are much more amenable to numerical simulations, but also offer a much more transparent encoding of the dynamics.
This has allowed first results on the perturbative continuum limit, which reveal that effective spin foams do lead to gravitons. I will explain an underlying mechanism applicable to a large class of models and choices of underlying lattices.
Furthermore, one can derive a lowest order correction to the Einstein Hilbert action, given by a Weyl squared terms. These results can be confirmed by an independent construction, that works entirely in the continuum, and is based on a modification of the Plebanski formulation of Gravity.

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