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Effective Spin Foam Models for Four-Dimensional Quantum Gravity and Their Dynamics HAL HAGGARD, Bard College, SETH ASANTE, BIANCA DITTRICH, Perimeter Institute for Theoretical Physics — A number of approaches to four-dimensional quantum gravity, such as loop quantum gravity and holography, situate areas as their fundamental variables. However, this choice of kinematics can easily lead to gravitational dynamics peaked on flat spacetimes because of how regions are glued in the gravitational path integral. I will introduce a family of 'effective' spin foam models that incorporate a quantum area spectrum, impose gluing constraints as strongly as possible, and leverage the discrete general relativity action to specify amplitudes. These effective spin foam models avoid flatness and exhibit good semiclassical behavior in a restricted regime of the parameter space. These models are the numerically fastest models to-date and I will report results on a triangulation including an inner edge.

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