

Abstract Submitted  
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**On the Quantization of Plane Gravitational Waves: Flat space considerations** SETH MAJOR, Hamilton College, FRANZ HINTERLEITNER, Masaryk University, JEREMY ADELMAN, UC Davis — In a (1+1)-dimensional midi-superspace model for gravitational plane waves, a flat space-time condition will be discussed. Solutions to a straightforward regularization of these constraints for flat space have diverging geometric expectation values. Physically acceptable solutions in the kinematic Hilbert space of a single atom of geometry are obtained. The expectation values and moments of the “flat space” constraint and geometric quantities are found, showing that these states provide possible kinematic states for flat space with fluctuations. Progress toward solutions of the scalar constraint will be discussed as time allows.

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