

Abstract Submitted  
for the APR08 Meeting of  
The American Physical Society

**Beyond Discrete Vacuum Spacetimes** JONATHAN MCDONALD,  
WARNER MILLER, Florida Atlantic University — In applications to pre-geometric models of quantum gravity, one expects matter to play an important role in the geometry of the spacetime. Such models often posit that the matter fields play a crucial role in the determination of the spacetime geometry. However, it is not well understood at a fundamental level how one couples matter into the Regge geometry. In order to better understand the nature of such theories that rely on Regge Calculus, we must first gain a better understanding of the role of matter in a lattice spacetime. We investigate consistent methods of incorporating matter into spacetime, and particularly focus on the role of spinors in Regge Calculus. Since spinors are fundamental to fermionic fields, this investigation is crucial in understanding fermionic coupling to discrete spacetime. Our focus is primarily on the geometric interpretation of the fields on the lattice geometry with a goal on understanding the dynamic coupling between the fields and the geometry.

Jonathan McDonald  
Florida Atlantic University

Date submitted: 11 Jan 2008

Electronic form version 1.4