

Abstract Submitted  
for the APR16 Meeting of  
The American Physical Society

**Vertex amplitudes in spin foam loop quantum cosmology<sup>1</sup>** DAVID CRAIG, Le Moyne College — We discuss properties of the vertex expansion for homogeneous, isotropic loop quantum cosmological models sourced by a massless, minimally coupled scalar field, which in this model plays the role of an internal matter “clock”. We show that the vertex expansion, first written down by Ashtekar, Campiglia and Henderson, must be thought of as a short-time expansion in the sense that the amplitude for volume transitions is constrained both by the order of the expansion and by the elapsed scalar field. To calculate the amplitude for significant volume changes or between large differences in the value of the scalar field requires the expansion be evaluated to very high order.

<sup>1</sup>This contribution describes work in collaboration with P. Singh.

David Craig  
Le Moyne College

Date submitted: 08 Jan 2016

Electronic form version 1.4