

Emergent Dimensions in Background Independent Quantum Gravity

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ABSTRACT

Abstract goes here.

I. INTRODUCTION

Background-independent models of spacetime geometry are increasingly common in the search for a quantum theory of gravity. If General Relativity is only an effective theory,

Introduction [?] , [?] , [?] .

II. SECTION 1

A. Evolution of the Model

Given an undirected, loopless graph G with vertices $V(G) = \{1...N\}$ and edges $E(G)$, a Hamiltonian H can be defined on the graph as follows:

$$H = J \sum_{i,j \in V(G), i \neq j} (d_i - d_j)^2 + K \sum_{v \in V(G)} d_v \quad (1)$$

Where J and K are weighting constants, and d_i simply represents the degree (number of connected edges) of a given node. The first of the sum forces the graph to be regular in the low-temperature limit, while the second sum pushes the graph to be more or less connected depending on the value of K . As K goes to infinity, the expectation value of the average node degree drops to zero. Conversely, as K tends towards negative infinity, the expectation value of the average node degree should go to $N - 1$.

III. SECTION 2

IV. CONCLUSION

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