

Abstract Submitted
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Applying Quantum Mechanics on Simple Graphs SAMSON J. ALVA, Mercer University — Simple graphs with links (edges) of weights either one (existent) or zero (non-existent) are considered as a model of discrete structure of ordinary space at very small scales. The links are not a part of the space but rather determine the relationships between the nodes, which constitute the physical space. The quantum mechanical propagator, intimately related to the graph Laplacian, is used to define the relative distances between nodes (vertices). Analytical methods are applied to obtain results for very small graphs (four or fewer nodes) and for certain highly symmetric graphs. Numerical methods are used for larger graphs containing clusters (cliques) of nodes to define effective inter-cluster distances.

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