



Mathematical Physics

Invariants of Spin Networks from Braided Ribbon Networks

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We connect Braided Ribbon Networks to the states of loop quantum gravity. Using this connection we present the reduced link as an invariant which captures information from the embedding of the spin-networks. We also present a means of understanding higher valent nodes in the context of braided ribbon networks and an interpretation of the dual of these nodes as polygons or polyhedra.

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Subjects: **Mathematical Physics (math-ph)**; General Relativity and Quantum Cosmology (gr-qc)

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