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Hiroshi Miki, Satoshi Tsujimoto and Luc Vinet* (vinet@crm.umontreal.ca). *Quantum walks on graphs of the ordered 2-Hamming scheme and spin networks.*

It is shown that the hopping of a single excitation on certain triangular spin lattices with non-uniform couplings and local magnetic fields can be described as the projection of quantum walks on graphs of the ordered 2-Hamming scheme. For some values of the parameters the models exhibit perfect state transfer between two summits of the lattice. The bivariate Krawtchouk polynomials of the Tratnik type that form the eigenvalue matrices of the 2-Hamming scheme give the overlaps between the energy eigenstates and the occupational basis vectors. (Received February 19, 2018)