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A Symmetrized Basis for Transitions in the Heisenberg Model[1]
ROGER HAYDOCK, Department of Physics, University of Oregon, C.M.M. NEX, Materials Science Institute, University of Oregon — The spin-S Heisenberg model has 2S+1 states on each site, for which there are $(2S+1)^2$ possible transitions between these states. For N sites there are $(2S+1)^N$ states and $(2S+1)^{2N}$ transitions between states. This rapid increase in the number of transitions with sites appears to limit calculations to just a few sites. However for transitions induced by spin-spin interactions, we construct a symmetrized basis which only grows as 2^{N-3}, making possible computations for much larger systems.

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