

Abstract Submitted
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Heisenberg spin chains with four-spin couplings¹ ALEXIOS KLIRONOMOS, JULIA MEYER, Department of Physics, The Ohio State University, 191 W Woodruff Ave, Columbus OH 43210, USA, TOSHIYA HIKIHARA, Department of Physics, Hokkaido University, Sapporo 060-0810, Japan, KONSTANTIN MATVEEV, Materials Science Division, Argonne National Laboratory, Argonne IL 60439, USA — We obtain and analyze the phase diagram of the zigzag Heisenberg spin chain including four-spin interactions arising from ring exchange processes. We perform exact diagonalization of chains up to 24 sites. In addition to the expected ferromagnetic, antiferromagnetic and dimer phases, the phase diagram contains a region of partial spin polarization as well as a region occupied by novel phase(s).

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