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Emergent SU(3) symmetry in random spin-1 chains[1] VICTOR QUITO, State University of Campinas, JOSE HOYOS, Sao Paulo University, EDUARDO MIRANDA, State University of Campinas — We propose a system that realizes the idea of an "emergent symmetry": its low-temperature behavior has a larger symmetry than the underlying Hamiltonian. This is found in generic SU(2)-invariant random spin-1 chains, whose complete phase diagram we mapped out and characterized both analytically and numerically. The system is shown to have two different low-temperature phases with emergent SU(3) symmetry. In each of them, susceptibilities and correlation functions of both spin and quadrupolar operators are characterized by the same asymptotic exponents, which are dictated by the emergent symmetry group. Both SU(3)-symmetric phases are governed by infinitely disordered ground states. Whereas one of the ground states is formed by random singlets of pairs of spins, the other is less conventional and consists of random-singlet spin trios.

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