

## ***Diagrammatic approach to frustrated quantum spins***

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Frustrated quantum spin systems are studied vigorously in solid state materials and artificial quantum simulators. Interest arises from exotic phenomena ranging from unconventional types of magnetic order to emergent fractionalized spin liquid phases. However, the theoretical analysis of such systems is often challenging, especially beyond one spatial dimension. We review our recent progress on this problem building on two diagrammatic approaches. The first set of methods relies on a pseudo-fermionic representation of spins, while the second formalism works directly with spin operators. Several practical applications are considered.