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【714】Extreme Quantum Fluctuations of the Heisenberg Antiferromagnet on the Honeycomb Lattice

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Enhanced quantum fluctuations are believed to give rise to new ground states and magnetic excitations in electronic insulators. I will present the effect of strong quantum fluctuations in the honeycomb van der Waals antiferromagnet YbBr3. Quantum fluctuations are believed to be enhanced in YbBr3 due to the two-dimensional nature of the exchange interactions. The low-energy spin dynamics of the system measured with inelastic neutron scattering are excellently reproduced by the spin-½ Heisenberg model treated with the matrix-product states (MPS) numerical method. The coexistence of magnon-like and continuum excitations are spectacularly reproduced by the method.

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