Magnetization plateau in frustrated quantum magnets

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In this talk I will present an overview of recent theoretical and experimental developments on magnetization plateau in frustrated quantum magnets, with special emphasis on the following issues:

- Some general theorems related to the conditions under which a plateau can occur.

- The analogy to the metal-insulator transition in frustrated ladders.

- The recent observation by NMR of the spin density profile in the 1/8-plateau phase of $SrCu_2(BO_3)_2$.

- The theory of this spin density profile in the context of a Heisenberg model adiabatically coupled to the lattice.

- The nature of the quantum and thermal phase transitions as revealed by experiments, numerical simulations, and analytical approaches.

- A review of open experimental and theoretical issues regarding $SrCu_2(BO_3)_2$.