Recent progress on XXZ spin systems on general graphs

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We introduce the XXZ Hamiltonian on general graphs with bounded maximal degree and show its equivalence to a direct sum of Schrödinger operators defined on so called symmetric graph products. Unlike in the case of the chain, the Bethe ansatz cannot be used anymore. Nevertheless, the interaction potential favors states that minimize their edge-surface, which we call droplets. We show Combes–Thomas estimates that allow to conclude that low-energy states are exponentially close to droplets states. After this, we discuss bounds on entanglement entropy for the chain.

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