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**Numerical Study of Spin-1/2 XXZ Model on Square Lattice from Tensor Product States** POCHUNG CHEN, CHEN-YEN LAI, MIN-FONG YANG — By means of the recently proposed algorithm based on the tensor product states, the magnetization process of the spin-1/2 anti-ferromagnetic XXZ model on a square lattice is investigated. In the large spin-anisotropy limit, clear evidence of a first-order spin-flip transition is observed as an external magnetic field is increased. Our findings of the critical field and the discrete jumps in various local order parameters are in good agreement with the quantum Monte Carlo data in the literature. Our results imply that this algorithm can be an accurate and efficient numerical approach in studying first-order quantum phase transitions in two dimensions.

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