Valence-bond-solid domain walls in a 2D quantum magnet[1] HUI
SHAO, Beijing Computational Science Research Center, WENAN GUO, Beijing
Normal University, ANDERS SANDVIK, Boston University — sing quantum Monte
Carlo simulations, we study properties of domain walls in a square-lattice S=1/2
Heisenberg model with additional interactions which can drive the system from an
antiferromagnetic (AFM) ground state to a valence-bond solid (VBS). We study the
finite-size scaling of the domain-wall energy at the putative "deconfined" critical
AFM-VBS point, which gives access to the critical exponent governing the domain-
wall width. This length-scale diverges faster than the correlation length and also is
related to the scale of spinon deconfinement. Our results show additional evidence of
deconfied quantum criticality and are compatible with critical exponents extracted
from finite-size scaling of other quantities.

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