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Phases in an anisotropic two-dimensional optical lattice SARA BERGKVIST, ANDERS ROSENGREN, KTH, ROBERT SAERS, EMIL LUNDH, MAGNUS REHN, ANDERS KASTBERG, Umeå University — We have studied the effects of anisotropy on a two-dimensional optical lattice using quantum Monte Carlo simulations. For finite lengths, such a system undergoes a one-dimensional quantum phase transition to a 1D Mott insulator of decoupled chains. Time of flight pictures and other measurable observables are calculated for a specified experimental setup.

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