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Momentum distribution of the hard-core extended Bose-Hubbard model in a frustrated two-leg ladder JONG-GEUN SHIN, IN-HO JEON, MIN-CHUL CHA, Department of Applied Physics, Hanyang University, Korea — Interacting hard-core bosons in a two-leg ladder frustrated in phase are studied by a Lanczos method. The ground state properties are investigated through the momentum distribution. At half-filling, the superfluid-insulator transition occurs even in the presence of the frustration as the interaction strength between neighboring sites is tuned. For a weak frustration, a peculiar signature in the momentum distributions appears, indicating an asymmetry between the two legs. Some distinct features for different frustrations and fillings are also discussed

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