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Superfluid correlations of ladder-type Hubbard model with trapping potential SUSUMU YAMADA, MASAHIKO OKUMURA, RYO IGARASHI, ATSUSHI YAMAMOTO, MASAHIKO MACHIDA, Japan Atomic Energy Agency — In this study, we investigate possibility of superfluidity derived from repulsive interactions in optical lattice systems using the DMRG method. We calculate superfluid correlations in 2-leg ladder-type Hubbard models with varying the repulsive parameter U and the trapping one V, and then clarify dependences of the superfluid correlations on the parameters. The calculation results show that there are two hotspots, whose superfluid correlations are remarkably high, in the space spanned by U and V for suitable fillings. In this presentation, we present the results, compare them with those in more than 2-leg Hubbard models, and reveal the best situation in which the superfluidity correlation develops.

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