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Approaching the two-dimensional dirty boson problem with n-leg ladders JUAN CARRASQUILLA, FEDERICO BECCA, MICHELE FABRIZIO, Scuola Internazionale Superiore di Studi Avanzati — We provide insight on the two-dimensional dirty boson problem by studying the disordered Bose Hubbard Model on n-leg ladders. We use Green's Function Monte Carlo and Variational Monte Carlo to establish the nature of the superfluid-insulator transition when the number of bosons equals the number of sites. Our numerical data is consistent with an intervening Bose Glass phase between the superfluid and Mott insulator phases, as recently suggested by Pollet and coworkers. Our data are useful to understand the difficulties observed in direct numerical and experimental determinations of the phase diagram of such systems.

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