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Link duality: an extension of Kramers-Wannier duality JOE MITCHELL, VICTOR GALITSKI, University of Maryland — Lattice duality, in the manner the famous Kramers-Wannier duality of 1941, has been thoroughly investigated. However, even now there are very simple unexplored extensions to be uncovered and utilized. We present one such by including site energies in the model Hamiltonian and examining the dual model that results. This grants a dual model with dual variables where the original model had interactions and vice versa. We can apply this extension to the Ising model and the XY model, among others, and it is doubtful that it would not be as applicable to many classical models with traditional dualities. The dual models tend to be less dependent on the lattice and interaction of the original models. Finally, we discuss the possible applicability of these extended dualities to a Kramers-Wannier like duality for fermions.

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