Topological non-symmorphic crystalline insulators CHAOXING
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sylvania State University — In this talk, we will describe a new class of Z2 topological
insulator protected by non-symmorphic crystalline symmetry, dubbed a "topolog-
ical non-symmorphic crystalline insulator." We construct a concrete tight-binding
model with the non-symmorphic space group pmg and confirm the topological na-
ture of this model by directly calculating topological surface states. In analog to
"Kramers' pairs" due to time reversal symmetry, we introduce the "doublet pairs"
originating from non-symmorphic symmetry to define the corresponding Z2 topo-
logical invariant for this phase. Based on the projective representation theory, we
extend our discussion to other non-symmorphic space groups that allows to host
topological non-symmorphic crystalline insulators.

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