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Incommensurate Order Proximate to a DDW Phase IVAILO DIMOV, CHETAN NAYAK, University of California, Los Angeles — We investigate the conditions under which incommensurate (IC) order can arise in the proximity of a $d_{x^2-y^2}$-density wave (DDW) phase, within the framework of pseudogap models involving competition of DDW and d-wave superconductivity (DSC). Analogously to the case of an antiferromagnetic (AF) Fermi surface instability, we argue that IC DDW order is energetically favorable away from half filling. Various possibilities of IC DDW order are presented. The resulting phase diagrams derived from extended Hubbard models with correlated hopping terms are constructed. We discuss our results in the context of the recent discovery by FT-STS of bond-oriented IC order in the $Bi_2Sr_2CaCu_2O_{8+\delta}$ pseudogap as well as the checkerboard patterns found in $Ca_{2-x}Na_xCuO_2Cl_2$.

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