

# Effects of on-site $U$ interaction on the eta-pairing superconductivity and CDW ordering in the Penson-Kolb-Hubbard model with repulsive pair-hopping interaction.

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The phase diagrams and electromagnetic properties of the Hubbard model with the pair-hopping interaction  $J$ , called the Penson-Kolb-Hubbard model, are analysed for the case of repulsive  $J$  ( $J < 0$ ). We focus on the effects of on-site  $U$  interaction on the eta-pairing superconductivity, i.e. the state with the Cooper-pair center-of-mass momentum  $\mathbf{q} = \mathbf{Q}$ , in this system. The phase diagrams involving magnetic, superconducting and CDW states are derived as well as the evolution of the critical fields, the coherence length, the Ginzburg ratio and the London penetration depth with particle concentration  $n$  and pairing strengths is determined at  $T = 0$  for  $d = 2$  (SQ lattice).

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