

Abstract Submitted
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A real space study of the effect of disorder on superconductivity SHREEMOYEE GANGULY, Department of Materials Science, S.N.Bose National Centre for Basic Sciences, JD-III Salt Lake City, Kolkata 700098, India, A.VENKATASUBRAMANIAN TEAM, KARTICK TARAFDER TEAM, INDRA DASGUPTA TEAM, ABHIJIT MOOKERJEE TEAM — Our method of studying the effect of disorder on superconductivity is based on the augmented space formalism that goes beyond mean-field approximations for configuration averaging and effectively deals with the influence of configuration fluctuations of the neighbourhood of an atom. In the regime of validity of Anderson's theorem our results for *s*- and *d*-wave dirty superconductors has excellent agreement with existing results. The formalism is extended and tested for random negative \mathbf{U} Hubbard model. Having verified the reliability of our method we use it to study environment dependent, inhomogeneous randomness in disordered superconducting systems. Our model can be easily extended to study multi-band systems which takes us a step closer to studying real materials.

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