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Spin - selective disorder and corresponding interaction driven spin - selective metal - insulator transition in d=2 PRABUDDHA CHAKRABORTY, Indian Statistical Institute, SHASHI KUNWAR, RAJESH NARAYANAN, Indian Institute of Technology, Madras, India — We present the study of an interesting variant of the Hubbard model of strongly correlated electrons in which only one spin species of electrons see a disordered environment. Through exact simulations in two dimensions, we show that it is possible to establish a metallic state (of the disordered spin species) through a quantum phase transition driven by interaction. Through the same simulations, we establish that magnetic instabilities play a crucial role in driving this transition. This sheds some new light on a question that the community has been involved in for decades: can interactions drive a localized (due to disorder) system of electrons metallic in two spatial dimensions or lower?

Prabuddha Chakraborty
Indian Statistical Institute

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