

Joint CQSE and CASTS Seminar

Weekly Seminar
Oct. 21, 2011 (Friday)

TIME Oct. 21, 14:30 ~ 15:30
TITLE Analysis of the disorder-Induced pseudogap in
Anderson-Hubbard Model
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PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

Using a combination of numerical and analytical calculations, we study the disorder-induced zero bias anomaly (ZBA) in the density of states of strongly-correlated systems modeled by the two dimensional Anderson-Hubbard model. We find that the ZBA comes from the response of the nonlocal inelastic self-energy to the disorder potential, a result which has implications for theoretical approaches that retain only the local self-energy. Using an approximate analytic form for the self-energy, we derive an expression for the density of states of the two-site Anderson-Hubbard model.

Our formalism reproduces the essential features of the ZBA, namely that the width is proportional to the hopping amplitude t and is independent of the interaction strength and disorder potential.

