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Disorder effects in ARPES spectral functions[1] ANAMITRA MUKHERJEE, NANDINI TRIVEDI, MOHIT RANDERIA, The Ohio State University — The interplay of disorder and interactions are known to cause novel effects in complex oxides such as cuprates and manganites. Understanding the single-particle spectral function, with a goal of separating out the effects of disorder and interactions, is an important step in elucidating the physics of these complex materials. We numerically evaluate the spectral function $A(\mathbf{r}, \mathbf{r}'; \omega)$ for model Hamiltonians with disorder. ARPES measures the occupied part of A, averaged over the center-of-mass variable $(\mathbf{r} + \mathbf{r}')/2$ and Fourier transformed in $(\mathbf{r} - \mathbf{r}') \rightarrow \mathbf{k}$. We analyze the line shape of the energy distribution curves (EDC) and momentum distribution curves (MDC). We compare our results with experiments on manganites, and on intentionally disordered chalcogenides.

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