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**Local Density of States in Disordered Graphene: a tight binding calculation** DONALD PRIOUR, University of Missouri, Kansas City, EUYHEON HWANG, Univesity of Maryland, College Park, SANKAR DAS SARMA, University of Missouri, Kansas City — We calculate the local density of states for graphene where disorder has the form of hydrogenation defects. We use the results to theoretically simulate the images of STM studies of this system for various defect densities. Operating within a tight binding framework, we calculate the density of electronic states in the Coherent Phase Approximation (CPA). Ultimately, we make no approximation and obtain the Green's function directly (we exploit sparseness of the appropriate system of equations to examine large systems sizes) for specific realizations of disorder in the graphene honeycomb lattice. We discuss the accuracy of the CPA results in the context of the full Green's function calculation. We present simulated STM images obtained in our calculations. This work has been partially supported by US-ONR and NSF-NRI-SWAN.

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