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**Exciton dynamics for single walled carbon nanotubes in the presence of a single ion** BENJAMIN TAYO, SLAVA ROTKIN, Lehigh University — We study the dynamics of excitons in single walled carbon nanotubes in the presence of a single ion placed on the surface of the tube. The scattering process is described in three main stages. First, we solve the Schrödinger equation in the tight binding approximation to calculate the quasiparticle wave functions and energies. Second, we use quasiparticle wave functions and energies in the Bethe-Salpeter equation to calculate exciton binding energies and wave functions. Finally, we use the exciton energies and wave functions to investigate the process of exciton-ion scattering. We model the potential of the single ion by that of a point charge. Our studies show exciton trapping in the presence of the ion.

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