

Abstract Submitted  
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**Fine structure of exciton levels in carbon nanotubes:  
A semianalytical approach**<sup>1</sup> SERGUEI GOUPALOV<sup>2</sup>, Jackson State  
University — We propose a new approach [1] toward excitons in carbon  
nanotubes whereby the matrix elements of the electron-hole Coulomb in-  
teraction are expanded into a series over the nanotube's one-dimensional  
reciprocal lattice vectors. We show that only a few terms of this expan-  
sion give a non-vanishing contribution to the Coulomb matrix elements.  
The proposed approach allows one to single out Fourier components  
of the Coulomb potential responsible for the intervalley coupling and  
formation of the exciton fine structure for each particular nanotube chi-  
rality.

[1] S.V. Goupalov, Phys. Rev. B 84, 125407 (2011).

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