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**Crossover from Peierls distortion to one-dimensional superconductivity in arrays of (5,0) carbon nanotubes** TING ZHANG, MING YUAN SUN, ZHE WANG, WU SHI, PING SHENG, the Hong Kong University of Science and Technology — We consider the electronic instabilities in (3,3)@(8,8) and (5,0)@(15,0) metallic double wall carbon nanotubes. Using 2rd order renormalization group method, we find that in the single wall (3,3) and (5,0) CNTs, the Peierls transition dominates, while if dressed with metallic outer shell, namely the (8,8) CNT and (15,0) CNT to form double wall carbon nanotube system(DWNT), the screening effect greatly reduces the Coulomb interaction of inner tubes, and superconductivity(SS) instability is identified to be the ground state, although the crossover temperature of which SS response functions take over could be very low.

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