# MODELING OF INTERACTION OF ATOM WITH CARBON NANOTUBE

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Transitions in hydrogen atom moving with a certain velocity along an atomic chain of a carbon nanotube (CNT) are considered. Due to the discreteness of the atomic arrangement of carbon nanotube undergoes a moving atom to a periodic disturbance. The resonant excitation of the atom with the transition from ground state to first excited state occurs at a frequency approximately equal to $2.5 \bullet 10^{15}$ Hz, which is achieved at an energy of the order of 500 eV. In this case, as a simplifying assumption as the distribution of electrons of carbon atoms and the position of these atoms assumed to be unchanged during the entire time of channeling. Stir in the nanotube favorably compared to the motion in chanels of single crystals that does not make too much distortion in the atomic state and leads to increased values of the Stark broadening of the levels. The changes in a state of atom are calculated with the help of numerical solution to the non-stationary Schrödinger equation. The time of ionization as well as excitation is estimated.