



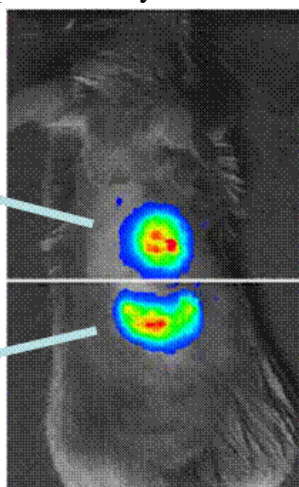
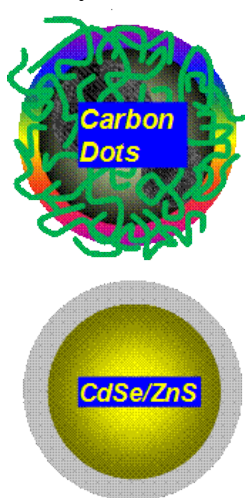
Vás zve na seminář:

## Carbon quantum dots synthesis and characterization

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### Abstrakt

A CNT QD is formed when electrons are confined to a small region within a carbon nanotube. This is normally accomplished by application of a voltage to a gate electrode, dragging the valence band of the CNT down in energy, thereby causing electrons to pool in a region in the vicinity of the electrode. Experimentally this is accomplished by laying a CNT on a silicon dioxide surface, sitting on a doped silicon wafer. This can be done by chemical vapor deposition using carbon monoxide. The silicon wafer serves as the gate electrode. Metallic leads can then be laid over the nanotube in order to connect the CNT QD up to an electrical circuit. The CNT QD has interesting properties as a result of the strong correlation between the confined electrons. In addition to this the electrons possess orbital angular momentum, as is characteristic of CNT electrons. Spin-orbit coupling has also been shown to be significant in these systems. These properties are often probed by connecting the nanotube to two metallic leads and measuring the conductance of the system.



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