

Excitons in carbon nanotubes

Tobias Hertel, *Institut für Physikalische und Theoretische Chemie, Am Hubland, Universität Würzburg, D-97074 Würzburg, Germany*

Single-wall carbon nanotubes (SWNTs) have intriguing electronic and optical properties, some of which also lend themselves for use in device technologies. The optical properties of SWNTs are dominated by excitons and the peculiarities of charge interactions in low-dimensional systems. What makes the photophysics of SWNTs so fascinating is that they bear signatures of both bulk semiconductors and molecular systems. We will explore the character of exciton manifolds in semiconducting SWNTs, their energetics and dynamics in light of recent experimental and theoretical findings. We will also take a look at the implications for possible application of SWNTs in photovoltaic- and other device technologies.

