II. 4 *"Nanocrystalline Quantum Dot (NQD) Films Deposited Using Colloidal Solutions"*

Semiconductor nanocrystal quantum dots (NQDs) have gained great interest due to their quantum confinement effects and their use in optoelectronic devices. Because of their ultr-small radius they can neither be classified as bulk materials, nor molecules. Furthermore, their properties are dependent on their size. Changing the quantum dots' size on a nanometer scale can dramatically change its density of electronic states and optoelectronic properties. This effect, along with high photoluminescence quantum efficiencies, good photostability, narrow emission spectrum, and strong optical absorption, makes quantum dots excellent candidates for photonic devices such as light emitting diodes (LEDs), solar cells, and lasers.

NQDs can be formed on the solid substrate using various techniques. In this presentation selected aspects of the process of formation of semiconductor quantum nanodot films (CdSe(ZnS)) by mist deposition are discussed. Films are deposited on bare silicon, glass, ITO and polymer coated silicon using mist deposition and their properties are explored in terms of luminescence spectra, film morphology, patternability, and emission intensity of LEDs formed on rigid and flexible substrates. Overall, it is demonstrated that the use of mist deposition allows for simple thickness control over ultr-thin, smooth, uniform films of quantum dots mostly independent of the size and shape of the substrate.

** Seminaria wygłaszane będą w języku polskim z wykorzystanie ilustracji w języku angielskim.*