

Quantum confinement effects on energy gap and optical properties of nanostructured ZnS

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The present contribution reports on the energy gap and optical properties of zinc-blende ZnS quantum dots using the pseudopotential approach. The effect of quantum confinement on the energy band gaps and optical properties namely the refractive index and high-frequency constant has been examined. It is found that significant variations in the studied properties occur at quantum well widths below 5 nm. This could provide more diverse opportunities to obtain desired electronic and optical properties that were not possible in the bulk ZnS material.

[1]. *S. Adachi*, Properties of Group IV, III-V and II-VI Semiconductors, Wiley, Chichester, 2005.

[2] *N. Bouarissa, M. Boucenna*, Phys. Scr. 79 (2009) 015701.

[3] *J. Yang, Y. Zidon, Y. Shapira*, J. Appl. Phys. 91 (2002) 703.