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Optical activity of semiconductor nanosprings*

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Received July 6, 2018

Nanosprings represent an advanced group of nanocrystals with chiral design, as well as much functionality due to their chemical and optical properties. In particular, their helical shape provides high optical activity. In this paper we suggest a quantum-mechanical theory to describe the optical activity of semiconductor nanosprings. Specific attention is given to the interaction of the left-handed and right-handed circular polarized light with nanosprings. The developed model shows that the spectrum of dissymmetry factor can be tuned by varying the geometric parameters of nanosprings.

DOI: 10.21883/OS.2018.11.46824.208-18

* International Conference „PCNSPA 2018 — Photonic Colloidal Nanostructures: Synthesis, Properties, and Applications“, Saint Petersburg, Russia, June 4–8, 2018.

Полный текст статьи опубликован в английской версии журнала.