

Macroscale alignment of CdSe/CdS nanorods by porous anodic alumina templates

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Abstract. Centimeter-scale assemblies of highly ordered CdSe/CdS core-shell nanorods have been successfully fabricated by infiltration of the nanorods into the pores of a transparent porous anodic alumina membrane. The high degree of the nanorod ordering is proved by the demonstration of both highly polarized PL and absorption of the aligned nanorods. The measured PL linear polarization degree is 53%. We have found that both the elongated CdS shell and the nearly spherical CdSe core exhibit a strong dependence of absorption on polarization angle with respect to the nanorod axis. We conclude that both CdS shell and CdSe core absorb more efficiently light with polarization along the axis of the nanorod.

Keywords: nanorods, CdSe core, anodic alumina templates

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