

Spectral properties of semiconductor quantum dots synthesized in ionic liquid crystals of cadmium alkanoates



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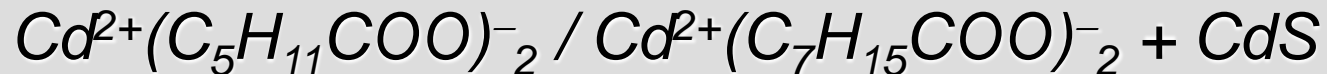
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introduction

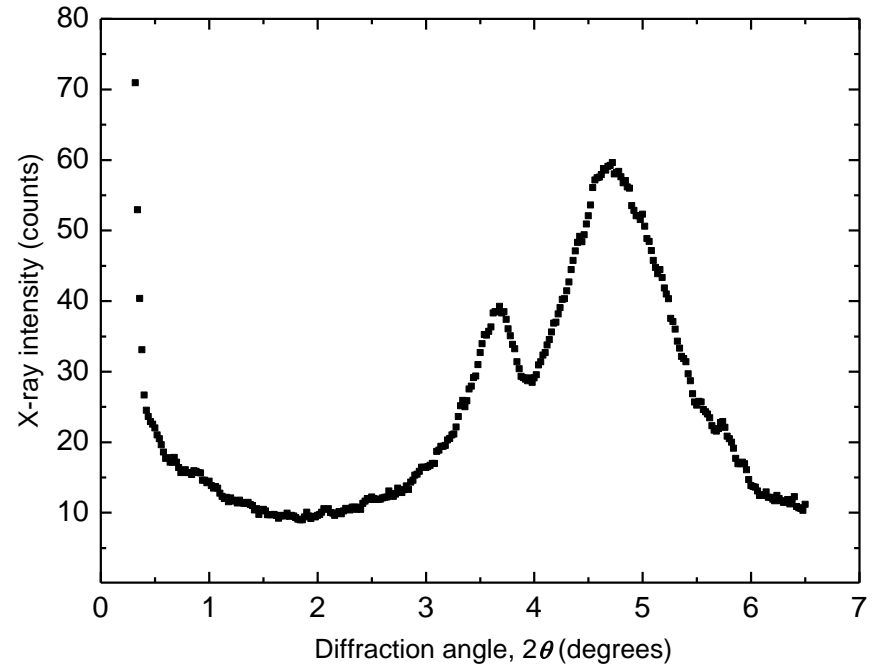
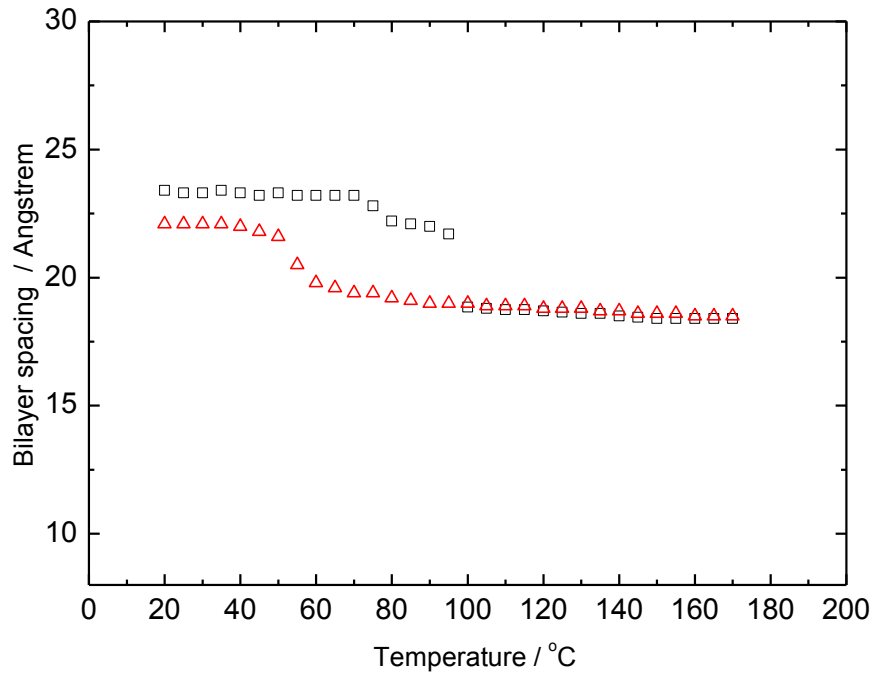
TILC $Cd^{2+}(C_nH_{2n+1}COO)_2$ matrix

Polycrystalline powder – mesophase – anisotropic glass

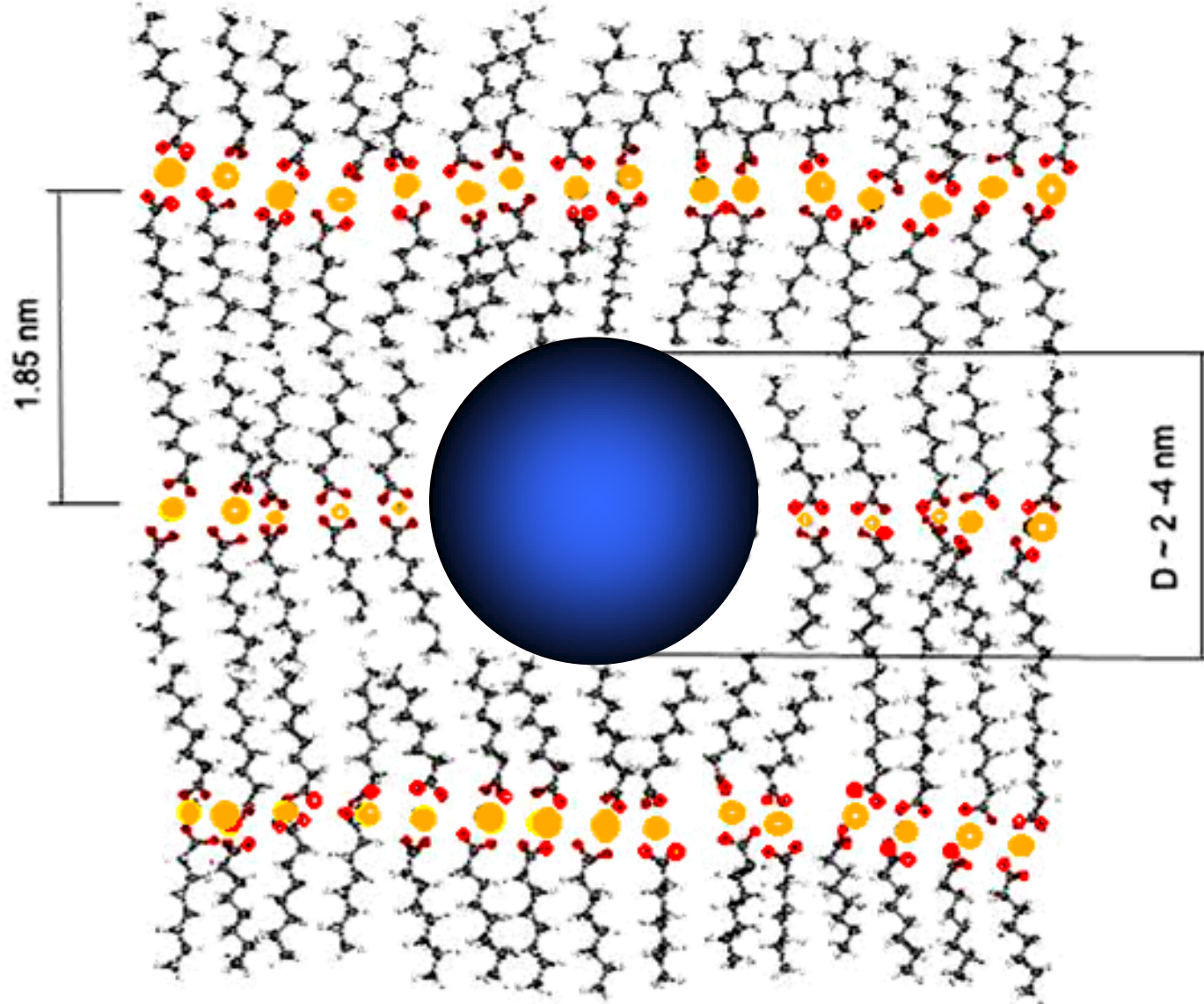
Room temperature - 120°C - **room temperature**



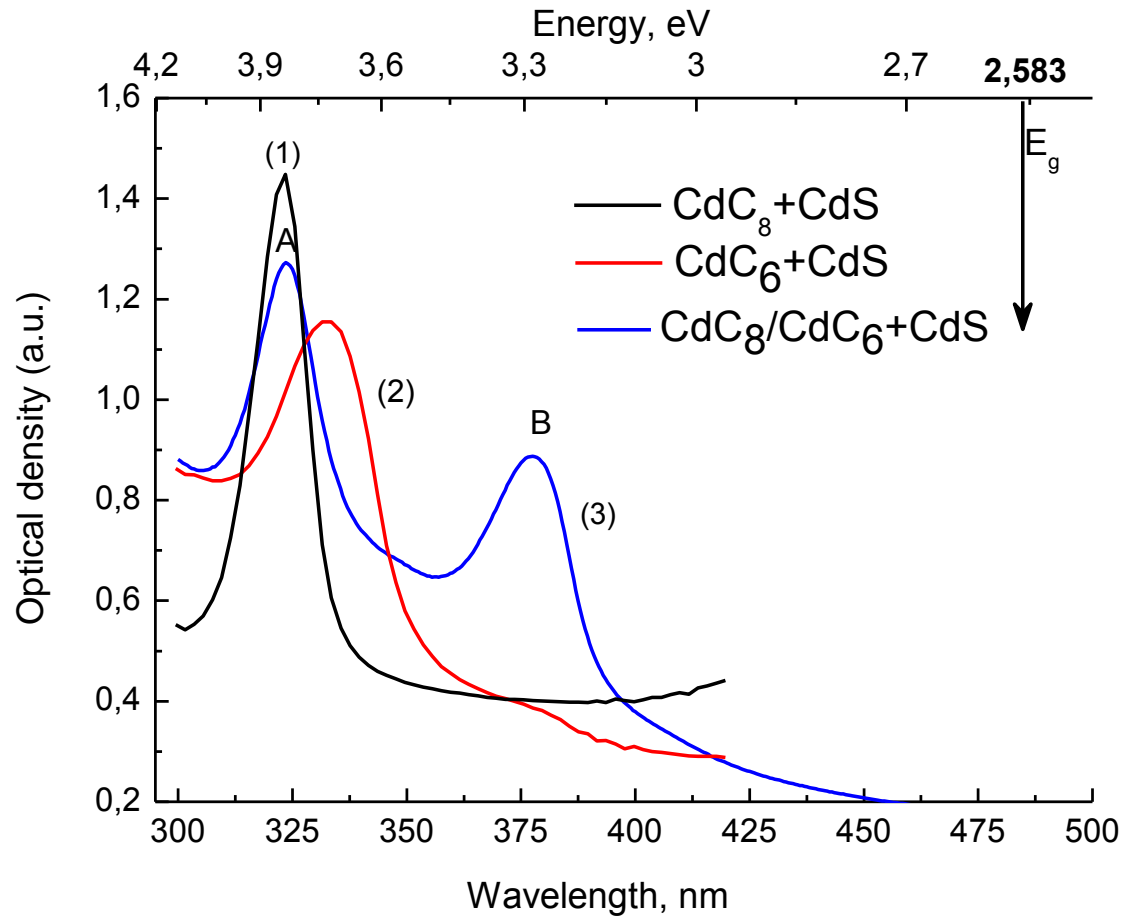
X-ray experiments



nanocomposite model



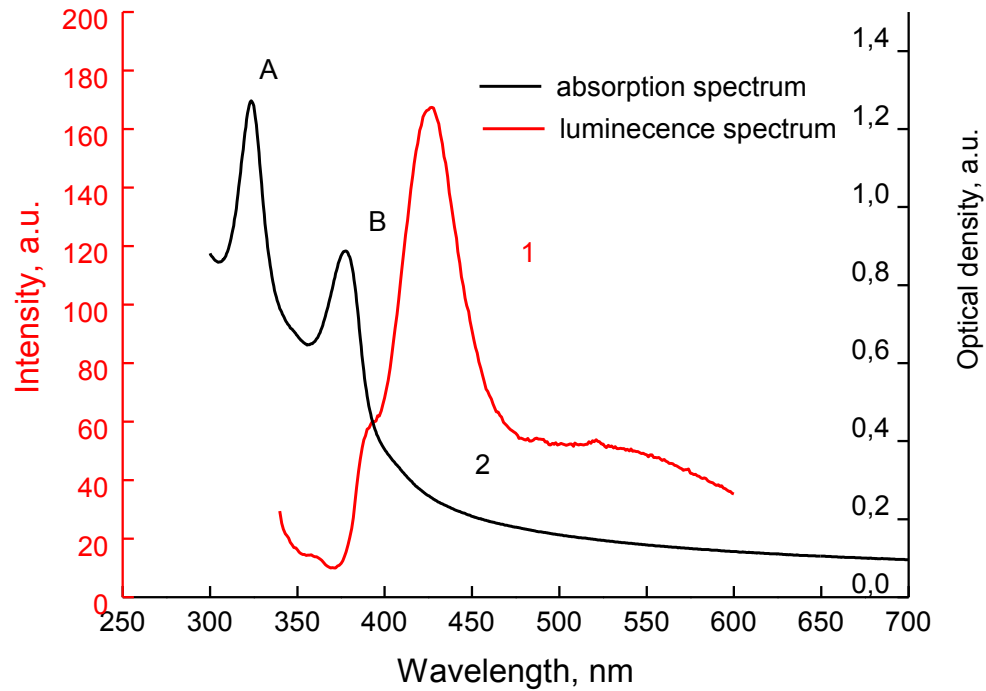
absorption spectra



nanocrystals sizes estimation

Material	Diameter of QDs according to data of the small-angle X-ray diffraction, nm	Diameter of QDs according to data of transmission electron microscopy, nm	Diameter of QDs calculated from the absorption spectra, nm
CdC ₈ + CdS	2.48	2.5	2.46
CdC ₆ + CdS	–	-	2.74
CdC ₈ /CdC ₆ + CdS	2.70 4.0	2.85 3.8	2.46 3.45

luminescence spectra





conclusions

- Absorption and luminescence spectra of novel nanocomposite material are obtained and analyzed
- CdS crystals sizes are well determined, the model is proposed