



Substrate and Luminescence properties of CdSe/CdS/ZnS Quantum Dots



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Abstract

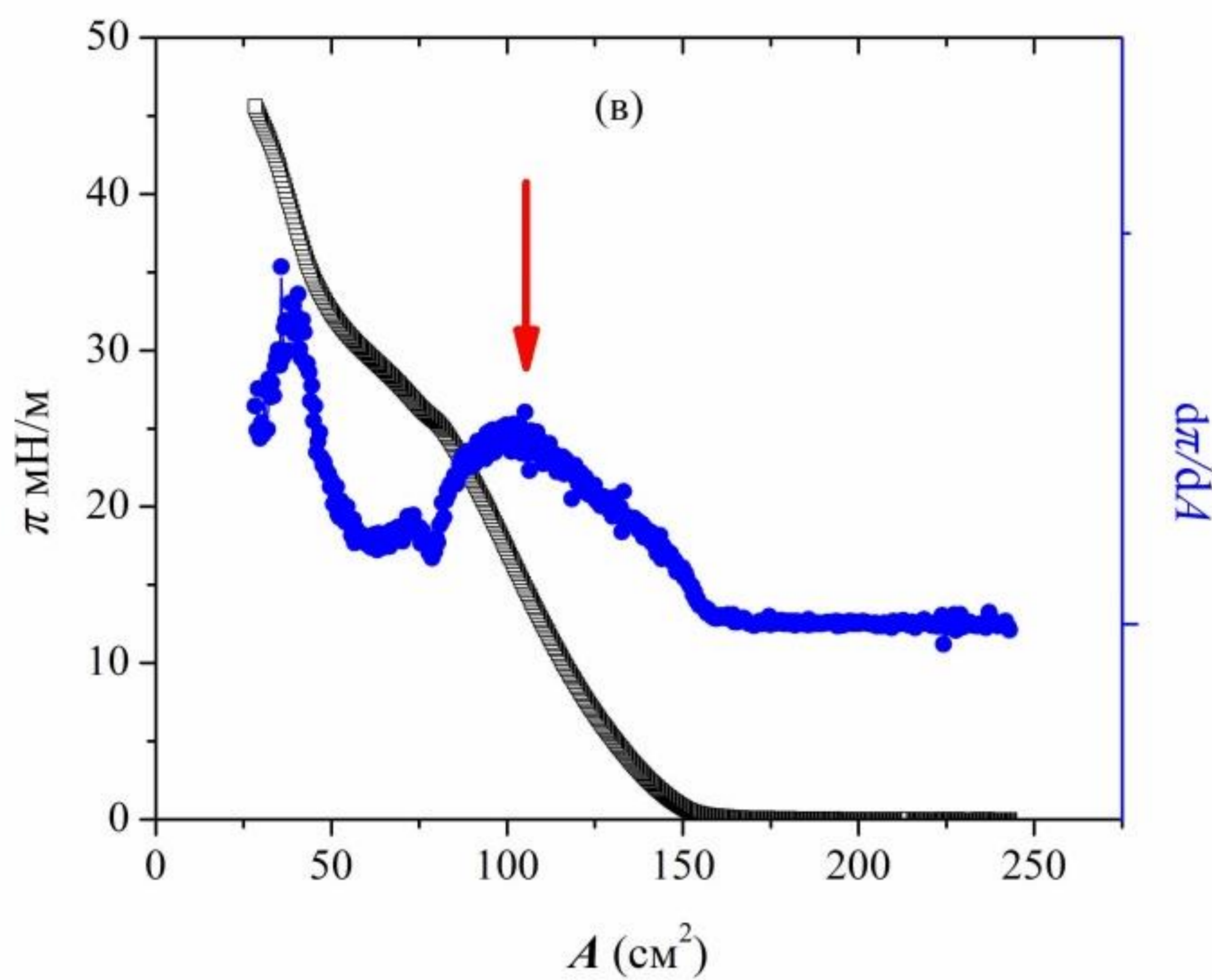
The photoluminescence of CdSe/CdS/ZnS quantum dots (QDs) deposited at solid surfaces (ITO) is considered for three types of organization: QDs directly adsorbed on solid surfaces, separated from the solid surface by a nanoscale liquid crystal (8CB) film with different thickness.



Conclusion

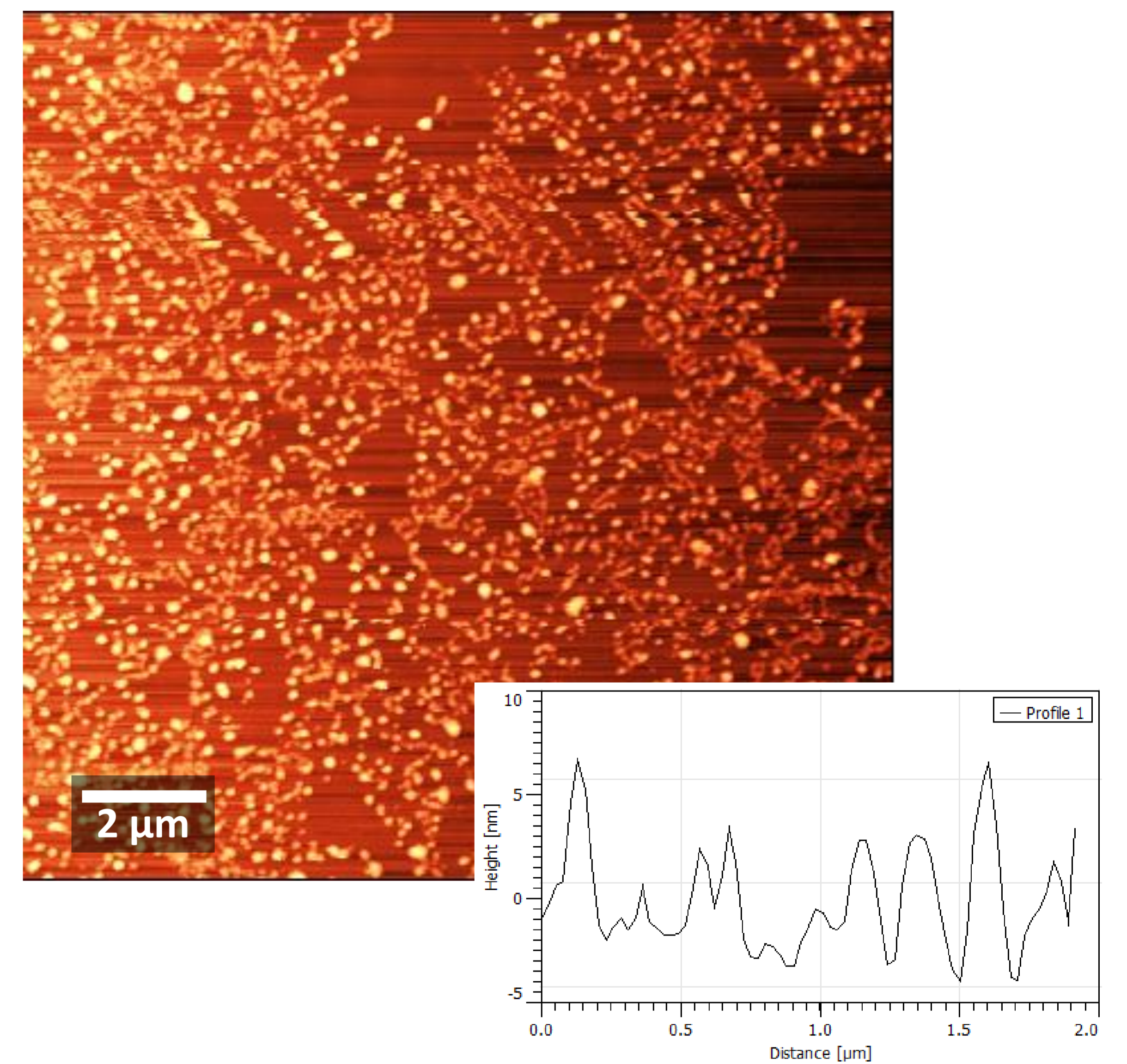
It was shown that the luminescence properties of thin QD films on a ITO surface can be tuned by adding a nanosized 8CB film (about 6 nm thick) between the QD layer and the substrate. It can be seen that the luminescence peak shifts hypsochromically to the blue region during irradiation. It was found that the luminescence intensity decreased by 35%.

Langmuir Blodgett method for the control of QDs monolayer



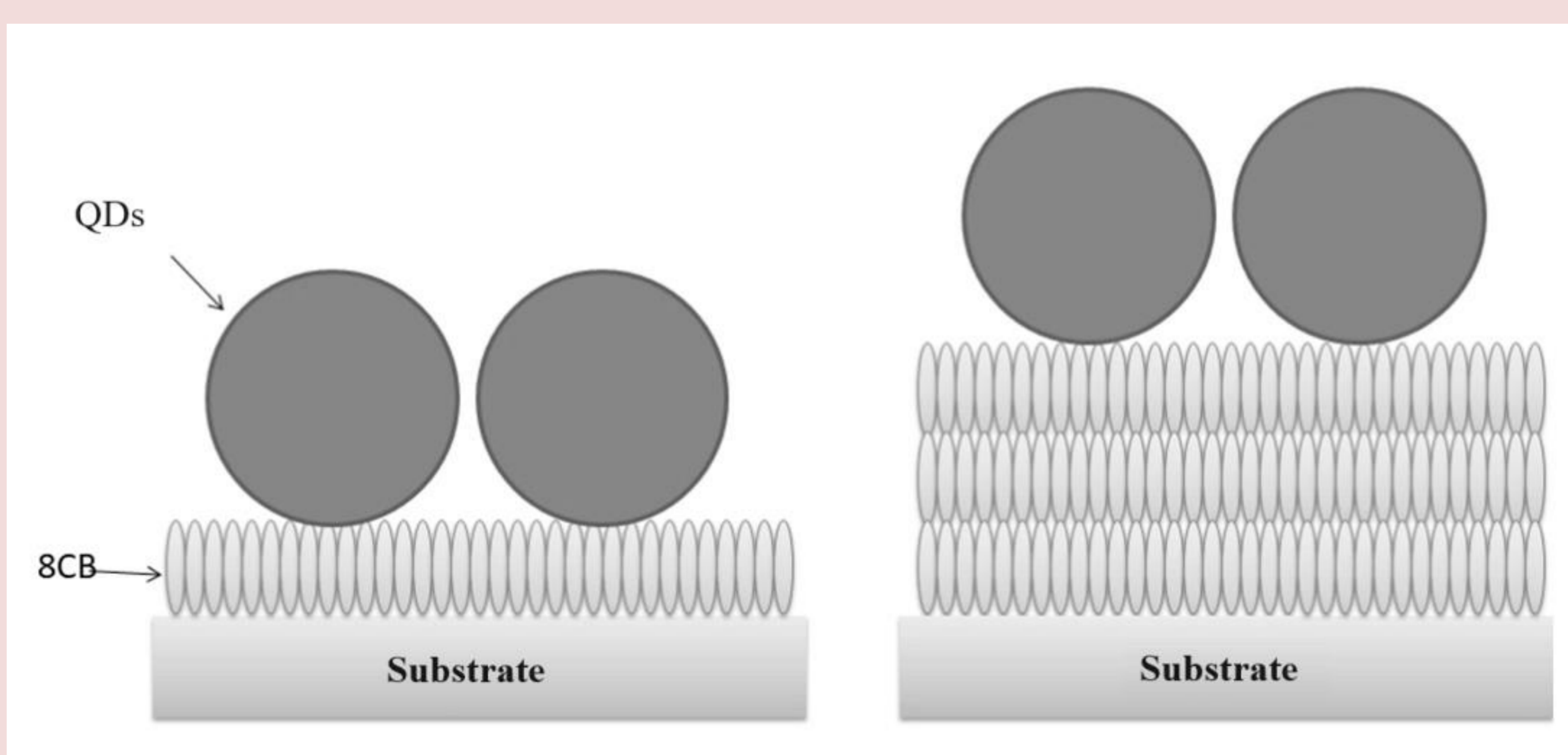
The control and monitoring of monolayer by measuring the surface pressure isotherm of external solution. The surface pressure was measured using KSV Nima LB Trough Medium KN 2002.

AFM image of QDs monolayer

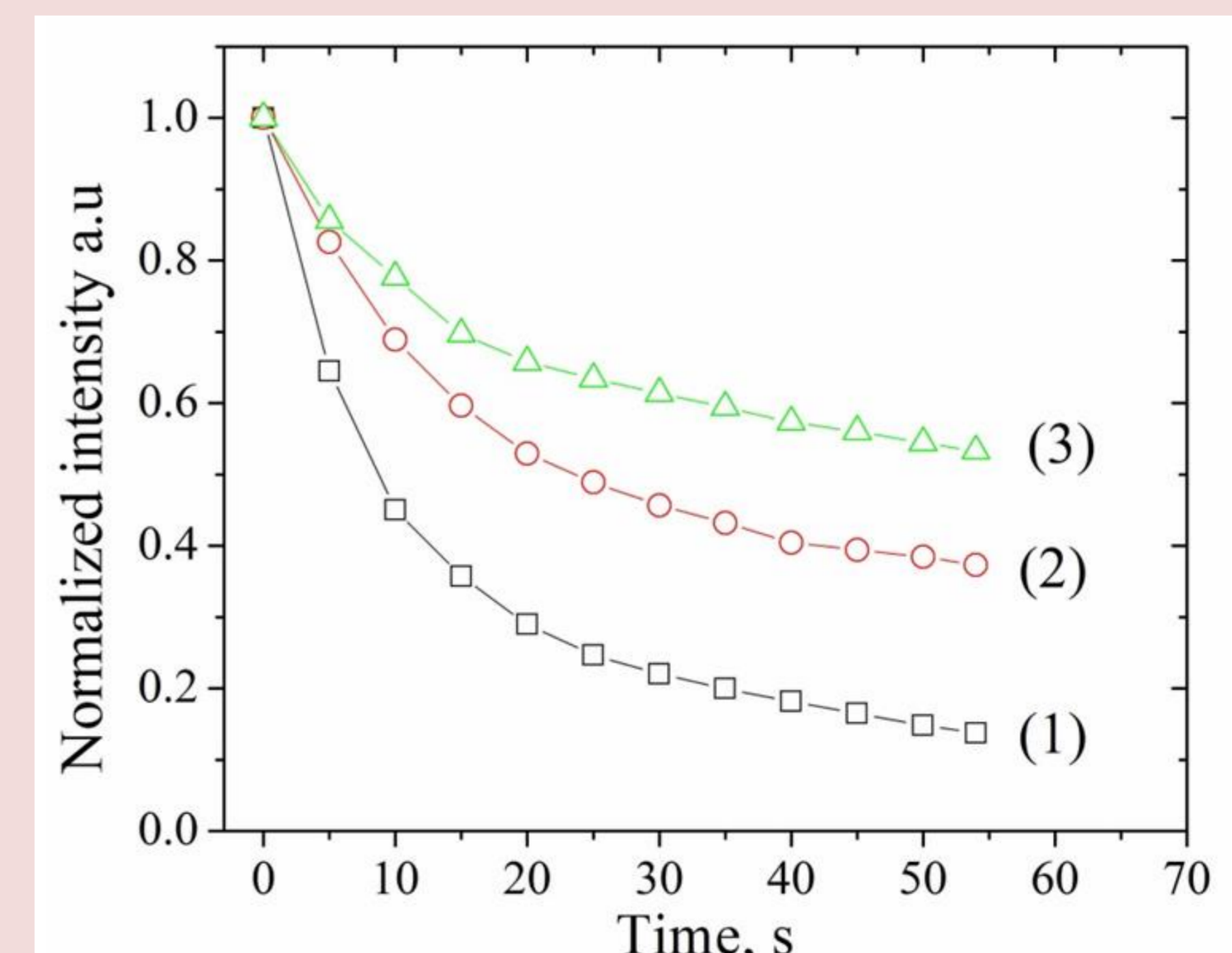


Typical AFM-images and profiles of QDs thin film

Schematic illustration of the arrangement of QDs monolayer placed on top of monolayer and three layers of 8CB



Luminescence properties of QDs and liquid crystal 8CB



Change in the intensity of the luminescence maximum depending on the irradiation time of the film QDs (1), QDs + 8CB monolayer (2) and QDs + 8CB three-layer film (3).

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