

Název: CdZn/CdZnSe, CdSe quantum dots synthesis
and characterization

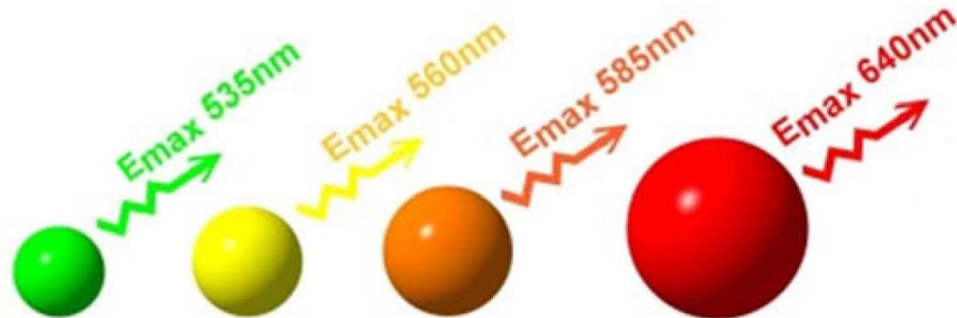
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Datum:
18.7. 2014

Preparation of CdTe QDs

- 10 ml of Cadmium acetate (53.2 mg/ml) and 1 ml Mercaptosuccinic acid (60 mg/ml) were mixed with 76 ml of deionized water on a magnetic stirrer.
- 1.8 ml of ammonia (1 M) solution was added to it. 1.5 ml of sodium tellurite (221.6 mg/ml) was also added mixed very well. 50 mg of sodium borohydride was added later.
- The solution was stirred for around 2 h until the bubble formation was stopped and subsequently the volume of the solution was made up to 100 ml with deionized water.
- 2 ml of this solution was taken in a small glass vessel and heated at 50 °C, 300 W for 10 min (ramping time 10 min) under microwave irradiation (Multiwave3000, Anton-Paar GmbH, Graz, Austria) and finally the CdTe QDs were prepared and stored in dark at 4 °C.

Photo of CdTe QDs under UV (312nm)



Preparation of ZnSe QDs

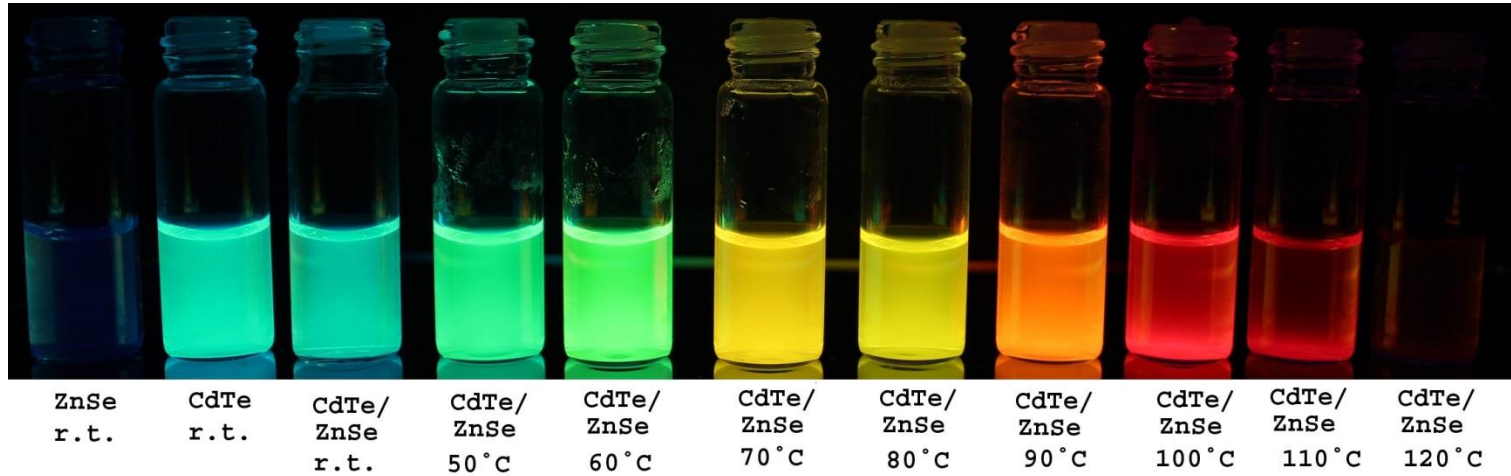
- 1 ml of zinc acetate (43.9 mg/ml) and 1 ml mercaptosuccinic acid (60 mg/ml) were mixed with 85 ml of deionized water on a magnetic stirrer.
- The pH of the solution was made to 7.5 with ammonia (1 M) solution.
- Then 1.5 ml of Sodium selenite (5.26 mg/ml) was added to it and mixed.
- 40 mg of Sodium borohydride was added later.
- The solution was stirred for 2 h until the bubble formation was stopped.
- Finally the volume of the solution was made up to 100 ml with deionized water and the ZnSe QD was prepared and stored in dark at 4 °C.

Preparation of CdTe/ZnSe QDs

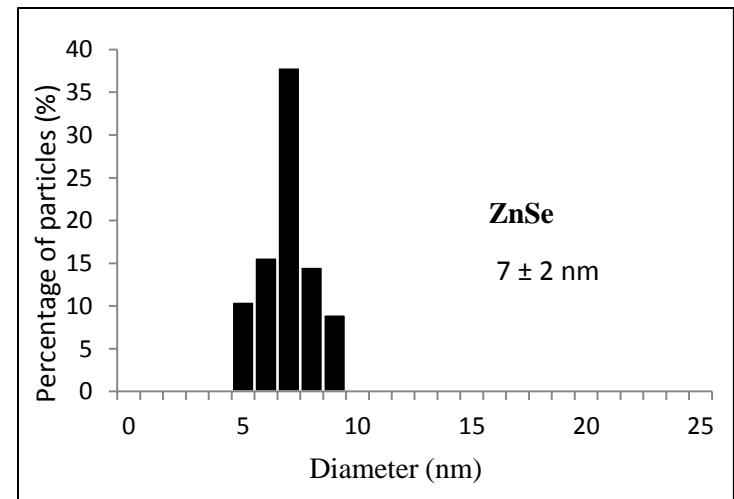
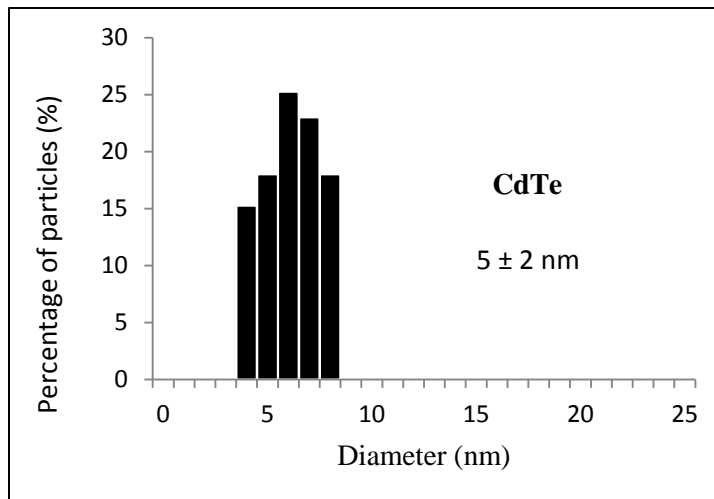
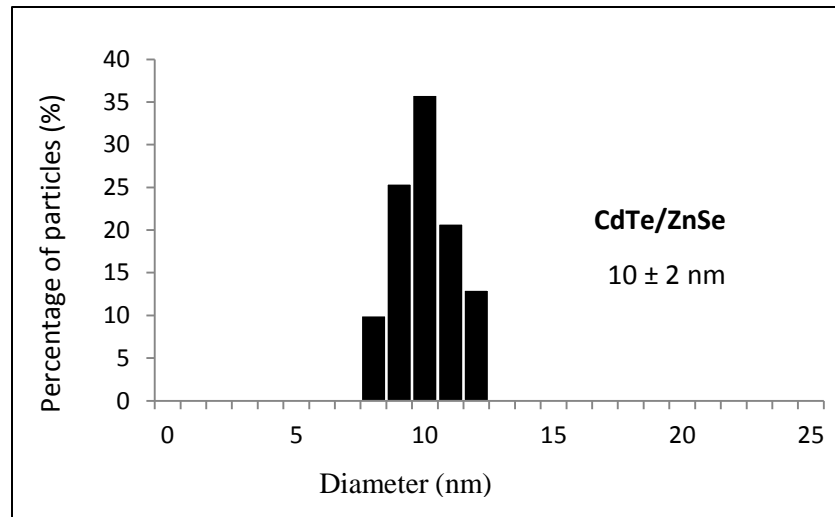
We prepared CdTe/ZnSe QDs by mixing ZnSe QDs with CdTe QDs in an appropriate proportion and heating at different temperature.



Photo of CdTe/ZnSe QDs under UV (312nm)

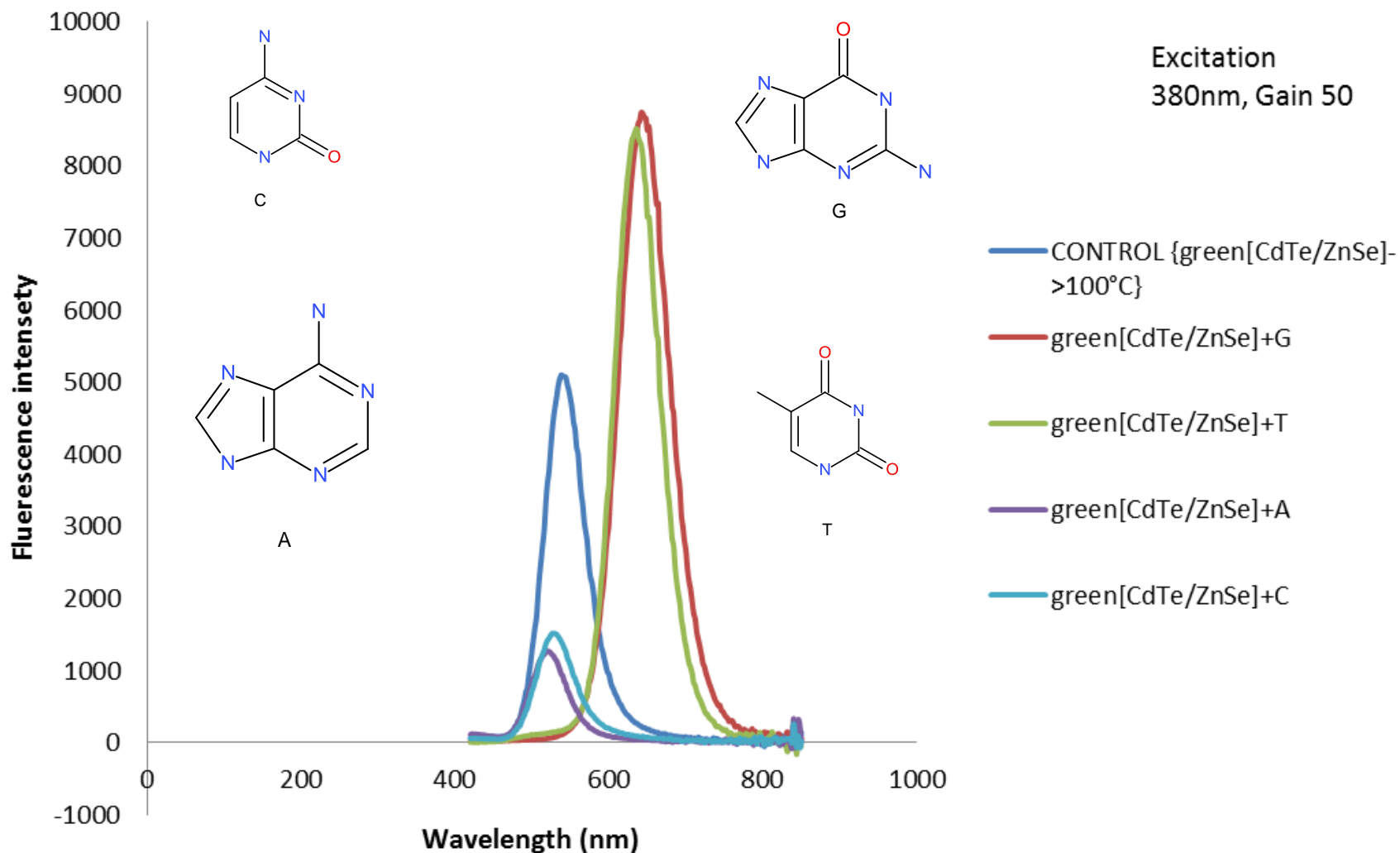


Dynamic Light Scattering (DLS) measurement of CdTe/ZnSe QDs



Interaction of CdTe/ZnSe QDs with bases

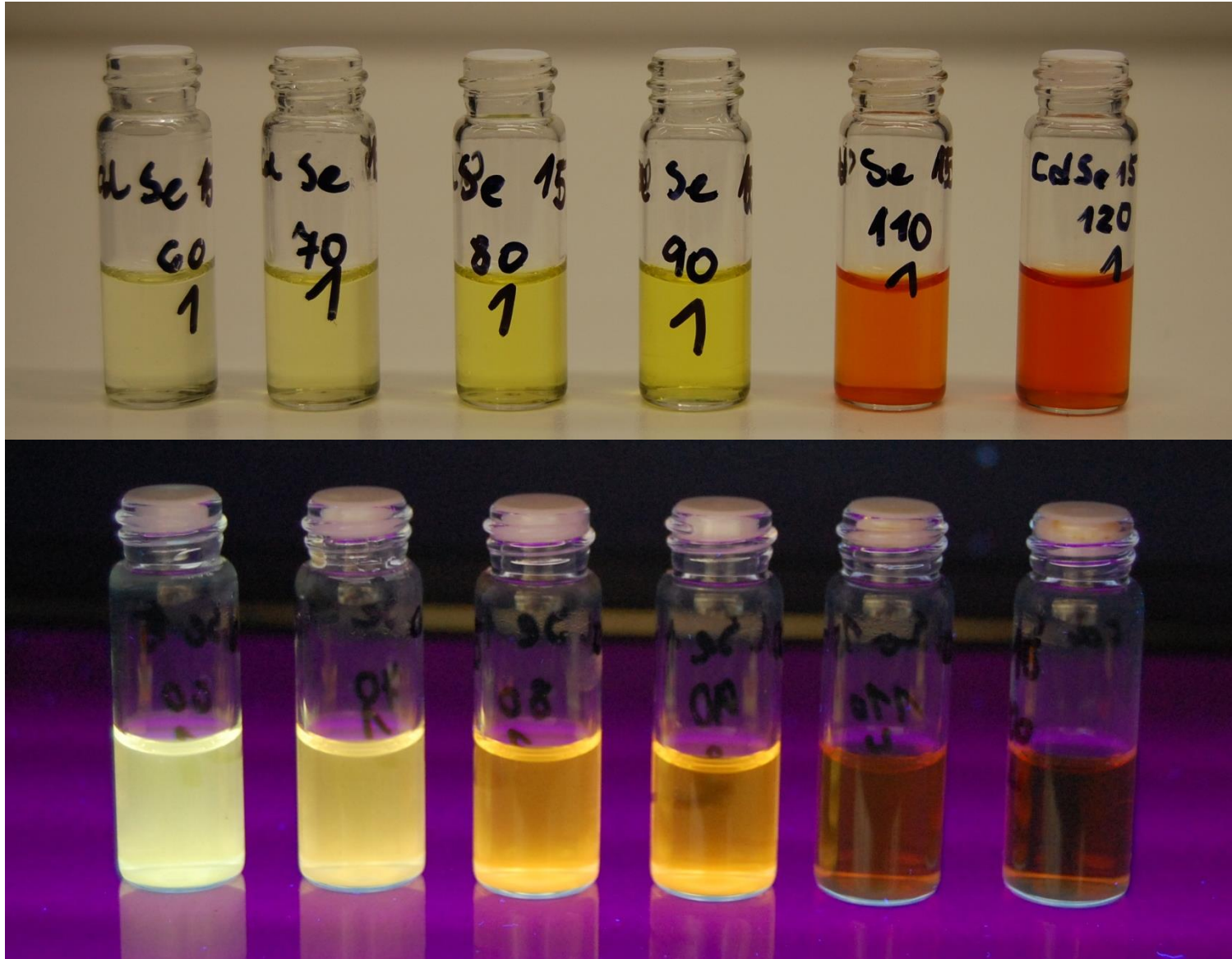
green[CdTe/ZnSe]+N base (8mM)-->100°C

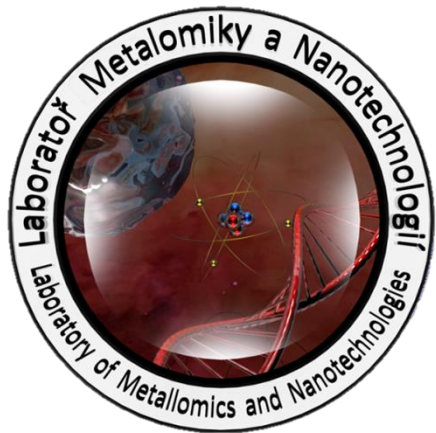


Preparation of CdSe QDs

- 10 ml of cadmium acetate (53.2 mg/ml) and 1 ml mercaptosuccinic acid (60 mg/ml) were mixed with 85 ml of deionized water on a magnetic stirrer.
- The pH of the solution was made to 7.5 with ammonia (1 M) solution.
- Then 1.5 ml of Sodium selenite (5.26 mg/ml) was added to it and mixed.
- 40 mg of Sodium borohydride was added later.
- The solution was stirred for 2 h until the bubble formation was stopped.
- Finally the volume of the solution was made up to 100 ml with deionized water and the CdSe QD was prepared and stored in dark at 4 °C.

Photo of CdSe QDs under UV (312nm)





Mendel
University
in Brno



Thank you for your attention!



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