

#### Simulation of Quantum Dots

#### Group project

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## Appendix A

### Abbreviations

# Glossary

 $\begin{array}{ccc} {\rm Quantum~Dot} & {\rm A~quantum~dot~is~a~portion~of~matter~(e.g.,~semi-conductor)~whose~excitons~are~confined~in~all} \\ & {\rm three~spatial~dimensions,~5} \end{array}$ 

8 Glossary

#### Bibliography

- [1] Olesya Yarema Deniz Bozyigit, Michael Jakob and Vanessa Wood. Deep level transient spectroscopy (dlts) on colloidal-synthesized nanocrystal solids. November 2012.
- [2] Alexander H. Ip et. al. Hybrid passivated colloidal quantum dot solids. *nature nanotechnology*, pages 1–6, July 2012.
- [3] Edward H. Sargent Jiang Tang. Infrared colloidal quantum dots for photovoltaics: Fundamental and recent progress. *Advanced Materials*, pages 12–29, 2011.
- [4] Victor I. Klimov. Nanocrystal Quantum Dots. CRC Press, Second Edition edition, 2010.
- [5] Mathieu Luisier. OMEN Manual. ETH Zürich, Integrated Systems Laboratory, October 2012.
- [6] Gregory D. Scholes Margaret A. Hines. Colloidal pbs nanocrystals with size-turnable near-infrared emission: Observation of post-synthesis self-narrowing of the particle size distribution. *Advanced Materials*, 21:1844–1849, November 2003.

10 BIBLIOGRAPHY

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