

Solution processing and self-organization of PbS quantum dots passivated with formamidinium lead iodide (FAPbI₃)

Samaneh Ayneband,^{‡,¶,§} Maryam Mohammadi,[‡] Kerstin Thorwarth,[‡] Roland
Hany,[¶] Frank Alain Nüesch,^{*,¶,⊥} Marta D. Rossell,[#] Robin Pauer,[#] Jean-Michel
Nunzi,[§] and Abdolreza Simchi,^{*,‡,Ⓜ}

[‡]Department of Materials Science and Engineering, Sharif University of Technology, 14588
Tehran, Iran

[¶]Laboratory for Functional Polymers, Empa, Swiss Federal Laboratories for Materials
Science and Technology, 8600 Dübendorf, Switzerland

[§]Department of Chemistry, Department of Physics, Engineering Physics and Astronomy,
Queens University, Kingston, Ontario, Canada

[Ⓜ]Surface Science and Coating Technologies Empa, Swiss Federal Laboratories for Materials
Science and Technology, 8600 Dübendorf, Switzerland

[⊥]Institute of Materials Science and Engineering, EPFL, Ecole Polytechnique Fédérale de
Lausanne, Station 12, 1015 Lausanne, Switzerland

[#]Electron Microscopy Center, Empa, Swiss Federal Laboratories for Materials Science and
Technology, Überlandstrasse 129, Dübendorf 8600, Switzerland

[Ⓜ]Institute for Nanoscience and Nanotechnology, Sharif University of Technology, 14588
Tehran, Iran

E-mail: Frank.Nueesch@empa.ch; simchi@sharif.edu

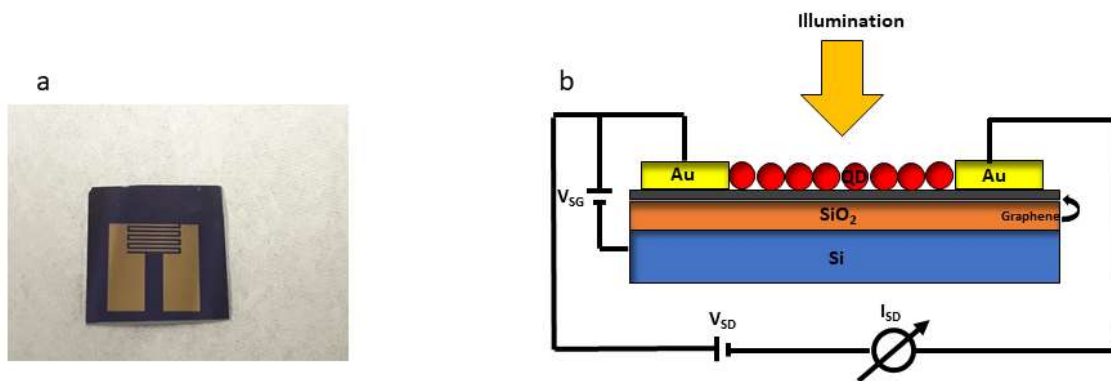


Figure S1. a) An electronic image of the prepared Si/SiO₂(300 nm)/graphene monolayer/QDs (80 nm) photodetector device, showing the interdigitated top gold electrode b) Sectional view of the photodetector device architecture showing the layer sequences and the electric circuit. During the measurement of the source-drain current I_{SD} , a constant bias V_{SD} of 3 V was applied. The source-gate voltage V_{SG} was set to 0V.

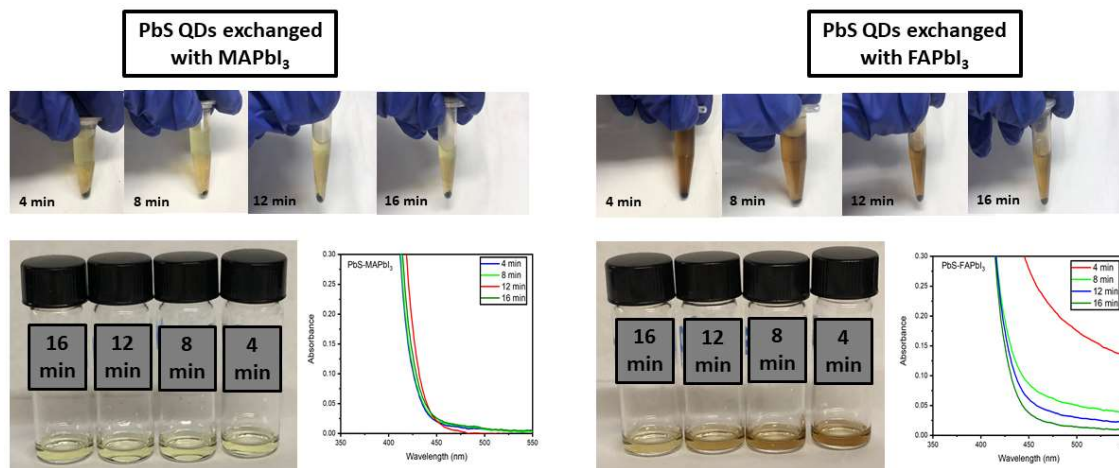


Figure S2. Optical images and corresponding absorption curves of the supernatant taken after different times of centrifugation (4, 8, 12 and 16 min) of PbS QDs with MAPbI₃ and FAPbI₃ ligands at a rotation speed of 14000 rpm.