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## Colloidal quantum dot field-effect transistors

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# List of publications

1. Huisman, E. H., Shulga, A. G., Zomer, P. J., Tombros, N., Bartesaghi, D., Bisri, S. Z., Loi, M. A., Koster, L. J. A. & van Wees, B. J. High Gain Hybrid Graphene–Organic Semiconductor Phototransistors. *ACS Appl. Mater. Interfaces* **7**, 11083–11088 (2015).
2. Shulga, A. G., Piveteau, L., Bisri, S. Z., Kovalenko, M. V. & Loi, M. A. Double Gate PbS Quantum Dot Field-Effect Transistors for Tuneable Electrical Characteristics. *Adv. Electron. Mater.* **2**, 1500467 (2016).
3. Shulga, A. G., Derenskyi, V., Salazar-Rios, J. M., Dirin, D. N., Fritsch, M., Kovalenko, M. V., Scherf, U. & Loi, M. A. An All-Solution-Based Hybrid CMOS-Like Quantum Dot/Carbon Nanotube Inverter. *Adv. Mater.* **29**, 1701764 (2017).
4. Balazs, D. M., Matysiak, B. M., Momand, J., Shulga, A. G., Ibáñez, M., Kovalenko, M. V., Kooi, B. J. & Loi, M. A. Electron Mobility of  $24 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$  in PbSe Colloidal-Quantum-Dot Superlattices. *Advanced Materials* **30**, 1802265 (2018)
5. Bederak, D., Balazs, D. M., Sukharevska, N. V., Shulga, A. G., Abdu-Aguye, M., Dirin, D. N., Kovalenko, M. V. & Loi, M. A. Comparing Halide Ligands in PbS Colloidal Quantum Dots for Field-Effect Transistors and Solar Cells. *ACS Appl. Nano Mater.* **1**, 6882–6889 (2018).
6. Lu, K., Wang, Y., Liu, Z., Han, L., Shi, G., Fang, H., Chen, J., Ye, X., Chen, S., Yang, F., Shulga, A. G., Wu, T., Gu, M., Zhou, S., Fan, J., Loi, M. A. & Ma, W. High-Efficiency PbS Quantum-Dot Solar Cells with Greatly Simplified Fabrication Processing via “Solvent-Curing”. *Advanced Materials* **30**, 1707572 (2018).
7. Han, L., Balazs, D. M., Shulga, A. G., Abdu-Aguye, M., Ma, W. & Loi, M. A. PbSe Nanorod Field-Effect Transistors: Room- and Low-Temperature Performance. *Advanced Electronic Materials* **4**, 1700580 (2018).
8. Shulga, A. G., Kahmann, S., Dirin, D. N., Graf, A., Zaumseil, J., Kovalenko, M. V. & Loi, M. A. Electroluminescence Generation in PbS Quantum Dot Light-Emitting Field-Effect Transistors with Solid-State Gating. *ACS Nano* **12**, 12805–12813 (2018).
9. Shulga, A. G., Yamamura, A., Tsuzuku, K., Dragoman, R., Dirin, D. N., Watanabe, S., Kovalenko, M. V., Takeya, J. & Loi, M. A. Patterned quantum dot photosensitive FETs for medium frequency optoelectronics. *Submitted* (2019)