

Supporting Information for

Colloidal quantum dot inks for single-step-fabricated
field-effect transistors: the importance of post-
deposition ligand removal

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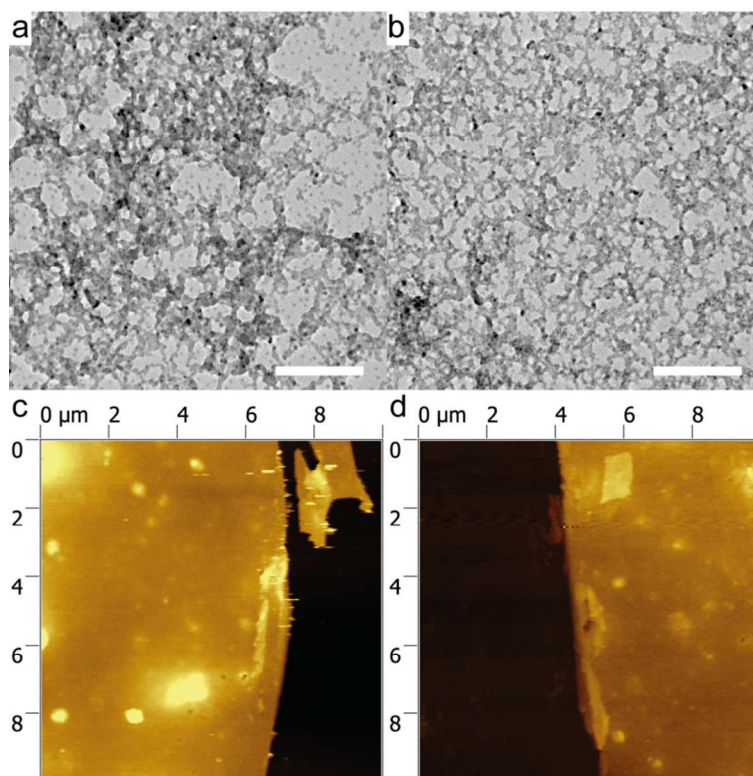


Figure S1. TEM images of (a) pristine and (b) washed PbS-MAPbI₃ CQD assemblies, the scale bars are 100 nm; AFM images of (c) pristine and (d) washed PbS-MAPbI₃ thin films.

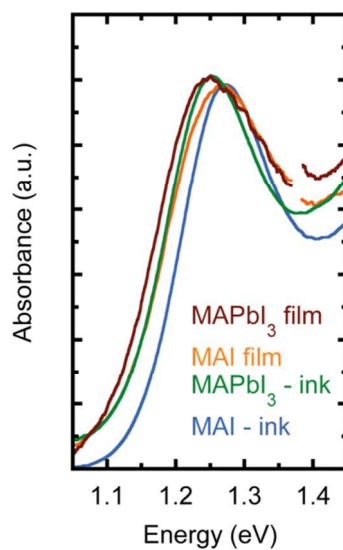


Figure S2. Absorbance spectra of the PbS-MAI and PbS-MAPbI₃ inks before and after deposition.

| Sample | treatment | Abs (eV) | A ₁ | E ₁ (eV) | w ₁ (eV) | A ₂ | E ₂ (eV) | w ₂ (eV) |
|------------------------------|-----------|----------|----------------|---------------------|---------------------|----------------|---------------------|---------------------|
| PbS-MAI | pristine | 1.27 | 0.34 | 0.98 | 0.045 | 0.93 | 1.07 | 0.044 |
| | washed | 1.26 | 0.32 | 0.99 | 0.046 | 0.78 | 1.04 | 0.064 |
| PbS-MAPbI₃ | pristine | 1.26 | 0.18 | 0.97 | 0.061 | 0.89 | 1.05 | 0.078 |
| | washed | 1.25 | 0.55 | 0.97 | 0.073 | 0.59 | 1.05 | 0.077 |

Table S1. Absorption peak positions and parameters of double Gaussian fits to the steady-state PL data of films prepared from PbS-MAI and PbS-MAPbI₃ inks, with and without washing in MeOH.

| Sample | treatment | τ_1 (ps) | τ_2 (ps) | τ_1 weight (%) | τ_{eff} (ps) |
|------------------------------|-----------|---------------|---------------|---------------------|--------------------------|
| PbS-MAI | pristine | 146 | 1086 | 0.41 | 296 |
| | washed | 131 | 655 | 0.53 | 211 |
| PbS-MAPbI₃ | pristine | 144 | 1056 | 0.41 | 294 |
| | washed | 119 | 807 | 0.40 | 245 |

Table S2. Lifetimes of the PL decay in films prepared from PbS-MAI and PbS-MAPbI₃ inks, with and without washing in MeOH.

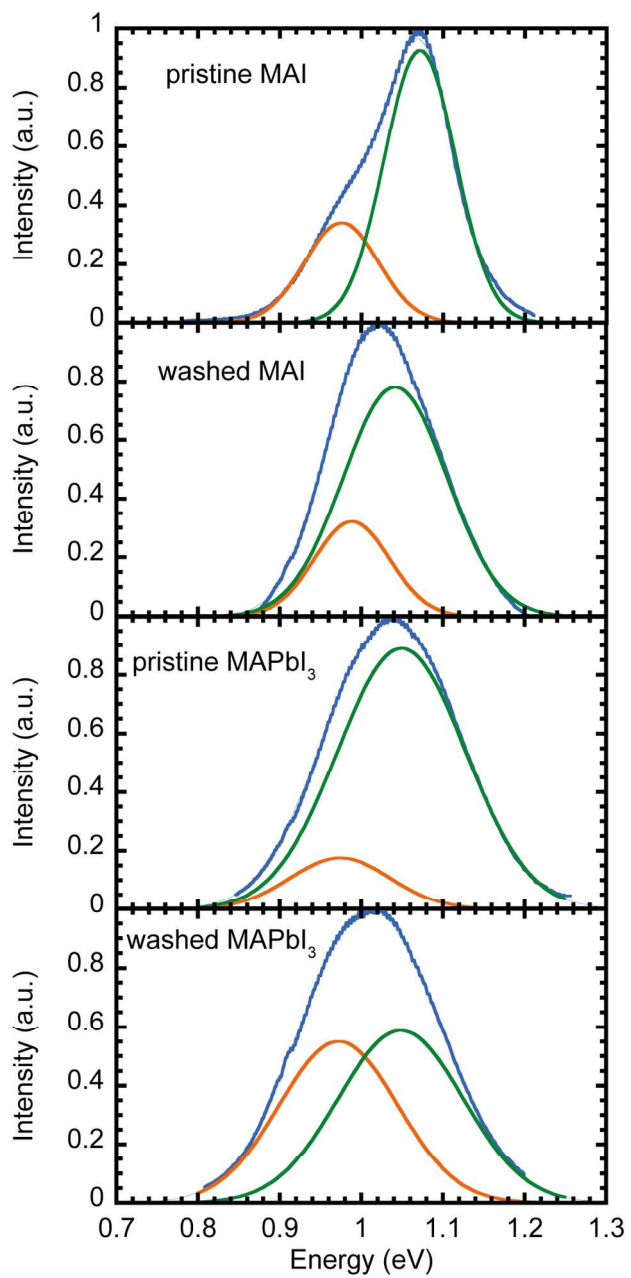


Figure S3. Double Gaussian fits to the thin film PL spectra.

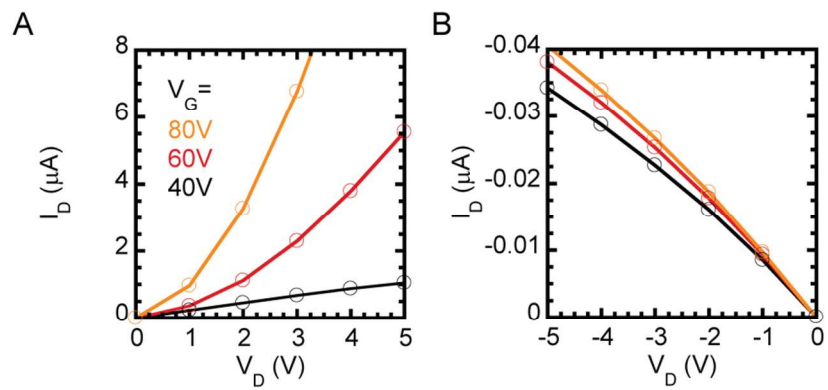


Figure S4. Low drain, high gate bias output curves in the (a) n-channel and (b) p-channel showing injection barrier for electrons, but not for holes.