

Supporting information

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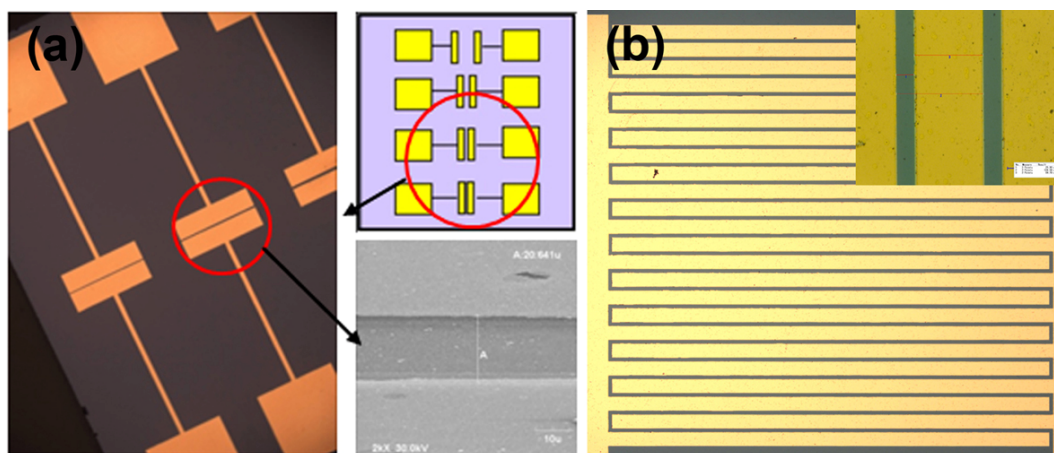


Figure S1. Two kinds of electrodes used in FETs electrical measurement. (a) Schematic and images of four pairs of spaced 6-40 μm apart patterned electrodes. (b) Optical microphotograph of equidistant interdigitated electrodes.

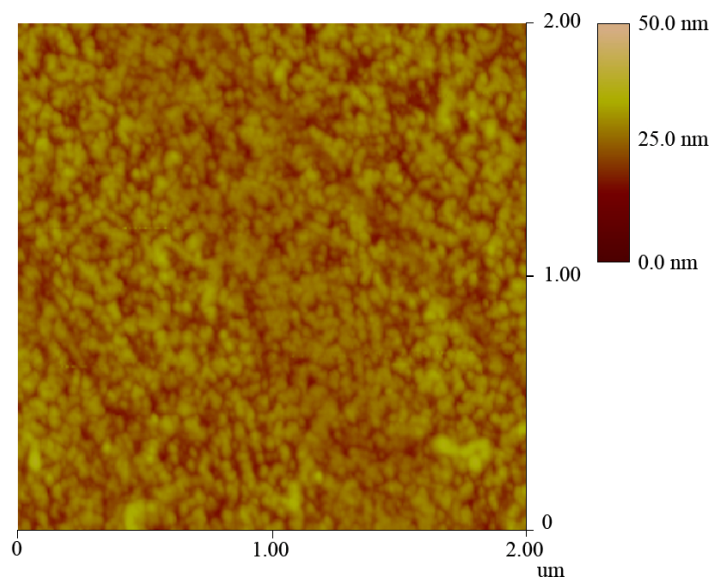


Figure S2. AFM morphology of the PbSe NCs films between two Au electrodes of FETs.

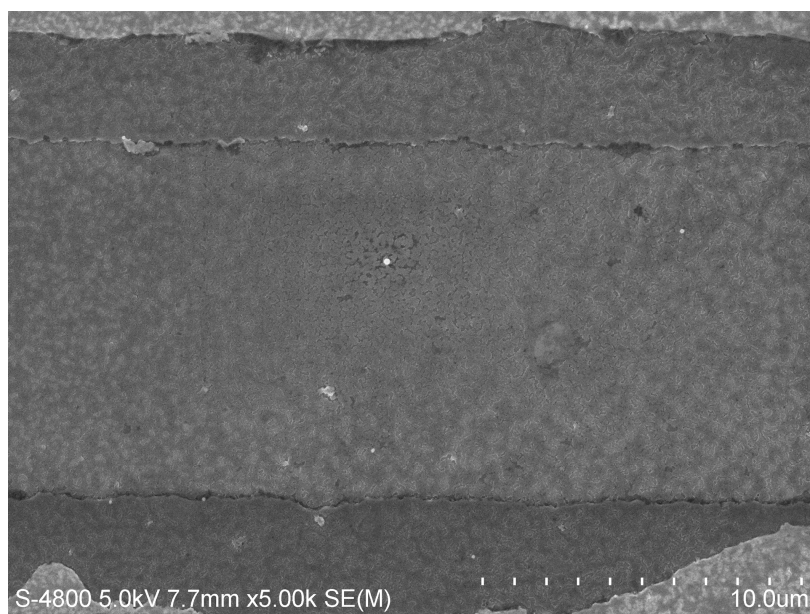


Figure S3. SEM morphology of the PbSe NCs films between two Au electrodes of FETs.

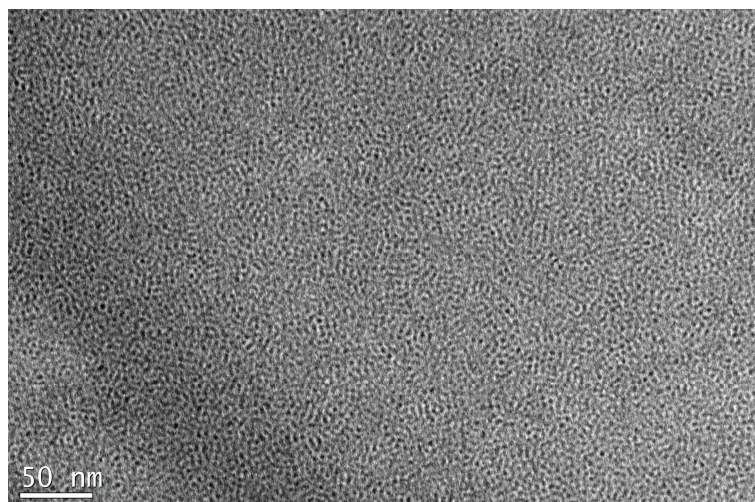


Figure S4. TEM morphology of the 4.5 nm sphere CdSe NCs monolayer periodic structures on copper grids. These NCs were obtained via natural cooling of reactions.

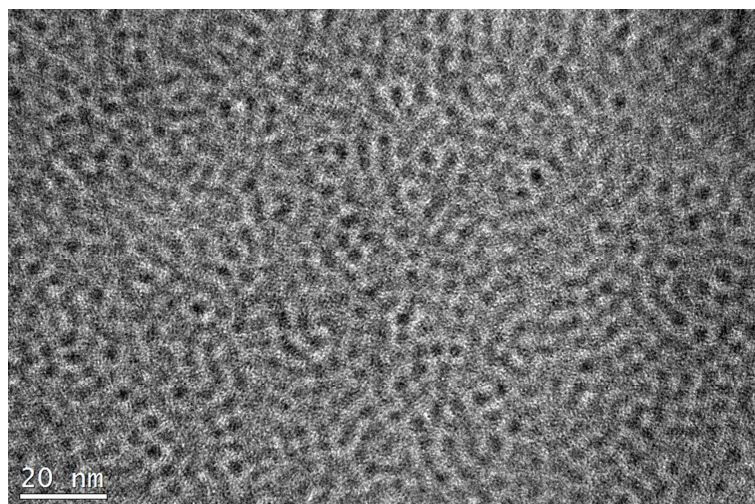


Figure S5. TEM morphology of the 3.6 nm sphere CdS NCs 2D superlattices on copper grids. The NCs were obtained via natural cooling of reactions.

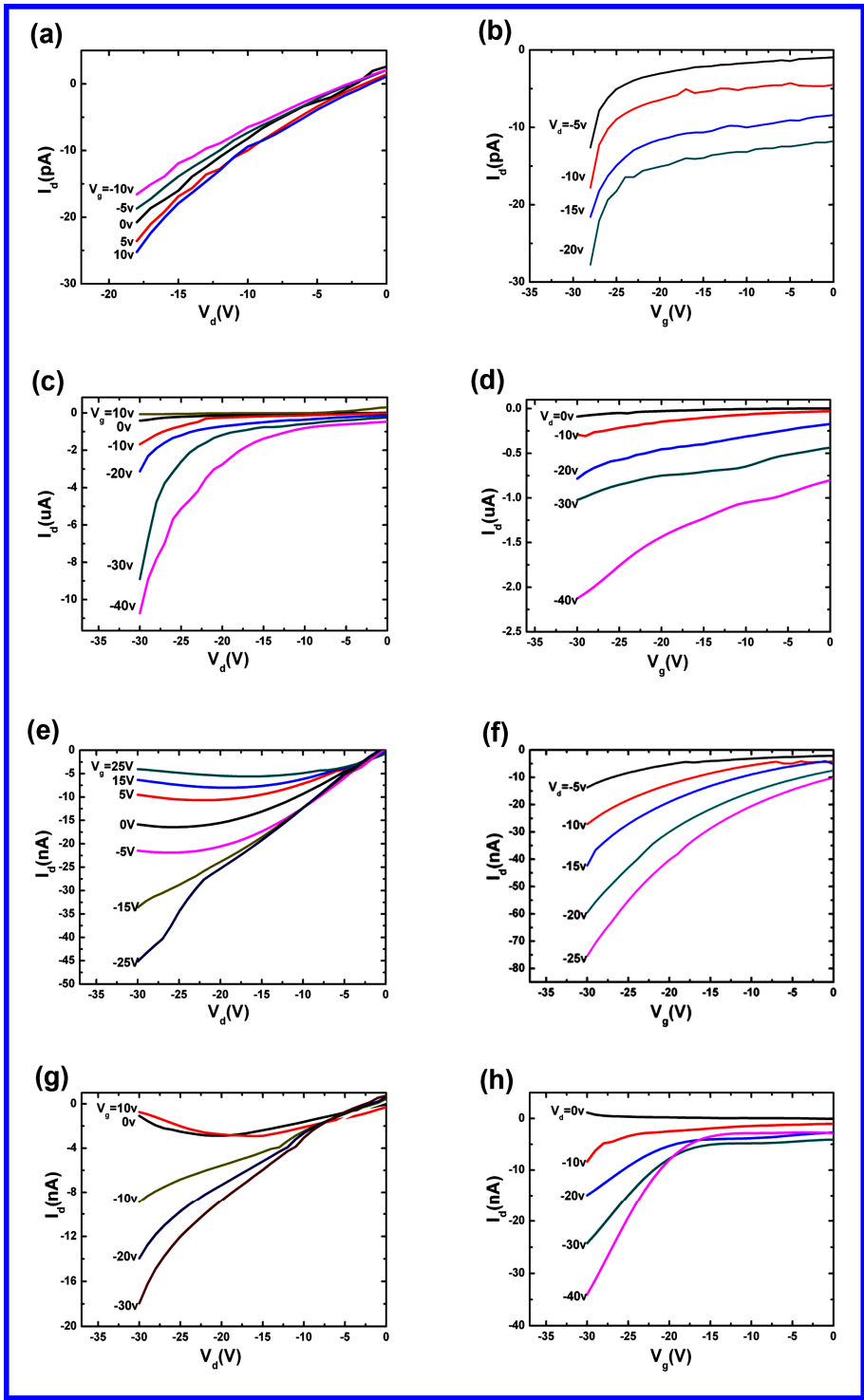


Figure S6. Output and transfer characteristic of PbSe NCs FETs, as-made (a and b), treated with 1M TGA (c and d), acetic acid (e and f) and 2-thioglycol (g and h) solution in ethanol. This results was obtained from four pairs patterned electrodes, the channel lengths are 6, 10, 20, 40 μm separately and the channel width is 815 μm .

treatment	type	conductivity(S cm ⁻¹)	mobility(cm ² V ⁻¹ s ⁻¹)	carrier density(cm ⁻³)
as-made	p	1.3×10^{-8}	9.8×10^{-7}	8×10^{16}
TGA	p	1.7×10^{-5}	9.2×10^{-4}	1.2×10^{17}
acetic	p	7.6×10^{-6}	5.4×10^{-4}	9×10^{16}
2-thioglycol	p	2.4×10^{-6}	1.8×10^{-4}	8×10^{16}

Table S1. Electrical property of multipods PbSe NCs films treated chemically obtained from four pairs of patterned electrodes.