Supporting Information for:

Assembling Silicon Quantum Dots into Wires, Networks and Rods via Metal Ion Bridge†

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Fig. S1 Optical transmittance spectra of Si QDs/Zn(NO₃)₂·6H₂O mixed solutions. Si QDs stored in methanol for 2 hours, 2 days and 7 days are used for the reaction. The Si QDs concentration and [Zn²⁺]/[Si QD] are fixed to 50 µg/ml and 100, respectively.
Fig. S2 TEM images of Si QDs assemblies produced by different size Si QDs. (a) $D = 4.0$ nm, $[\text{Ni}^{2+}]/[\text{Si QD}] = 100$, $C_{\text{Si}} = 10 \mu\text{g/ml}$, (b) $D = 7.0$ nm, $[\text{Ni}^{2+}]/[\text{Si QD}] = 30$, $C_{\text{Si}} = 100 \mu\text{g/ml}$, (c) $D = 13$ nm, $[\text{Zn}^{2+}]/[\text{Si QD}] = 100$, $C_{\text{Si}} = 10 \mu\text{g/ml}$, (d) $D = 57$ nm, $[\text{Zn}^{2+}]/[\text{Si QD}] = 50$, $C_{\text{Si}} = 10 \mu\text{g/ml}$. 
Fig. S3 PL intensity of solutions containing Si QDs ($D = 7$ nm, $C_{Si} = 50$ µg/ml) and metal salts, i.e., Ni (NO$_3$)$_2$·6H$_2$O, Zn (NO$_3$)$_2$·6H$_2$O, KNO$_3$, and NaNO$_3$, as a function of the number ratio of metal ions and Si QDs ([Metal ions]/[Si QD]).

Fig. S4 (a) P 2p and (b) B 1s XPS spectra of Si QDs (black) and Si QDs assembly (red).
Fig. S5 I-V characteristics of a Si QDs solid produced without metal ions measured in vacuum at room temperature in dark and under light irradiation ($\lambda = 405$ nm). The irradiation power is changed from 3 to 9 mW.