

Supplementary Information for
Self-assembly of single “square” quantum ring in gold-free
GaAs nanowires

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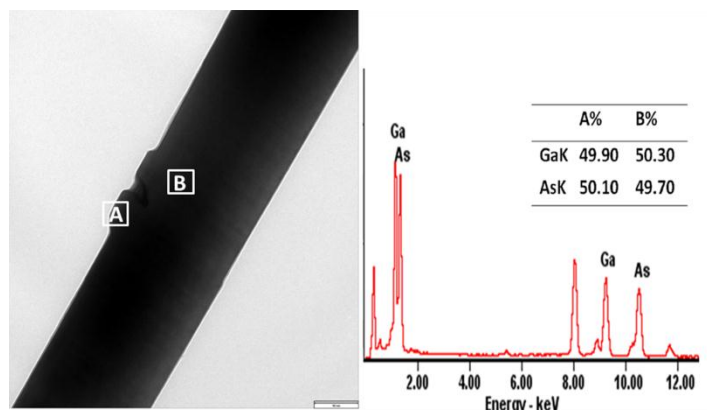


Figure S1. Elemental spot scan of EDX measurements on both the QR and NW's backbone, revealing Ga:As ratio of nearly 1:1.

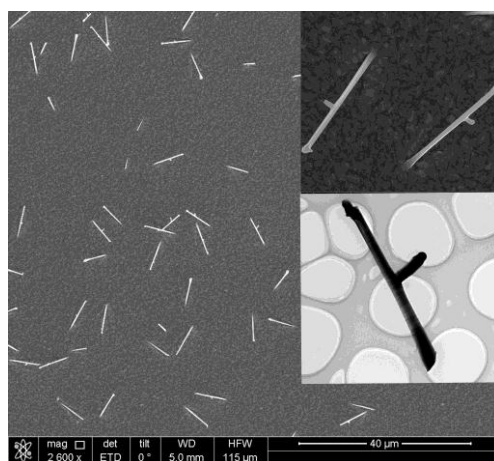


Figure S2. A typical $\text{Al}_{0.45}\text{Ga}_{0.75}\text{As}$ capped QR/NW samples. Branched structures emerge on the sidewall of NWs. The density of branches per NW and the ratio of branched NWs in the sample are consistent with that of QR. We conclude that QR acts as a nucleation site for branches in gallium-rich conditions. The optimized condition for AlGaAs capping are high Al content, As-rich environment and high growth temperature.