Supporting Information

Type-Tunable Amplified Spontaneous Emission from Core-Seeded CdSe/CdS Nanorods Controlled by Exciton-Exciton Interaction

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Figure S1. (a) Absorption and (b) photoluminescence spectra of CdSe/CdS core/shell NRs with varied core sizes and rod lengths.
Figure S2. High-angle annular dark-field transmission electron microscopy (HAADF-TEM) images of the (a) NR₄, (c) NR₅ and (e) NR₆ with a scale bar of 100 nm and (b) NR₄, (d) NR₅ and (f) NR₆ with a scale bar of 50 nm.
Figure S3. (a) Schematic illustration of CdSe/CdS core/shell NRs proportional to their size. (b), (c), (d) Excitation intensity dependent emission spectra of NR$_4$ (with red-shifted ASE peak), NR$_5$ (with blue-shifted ASE peak), and NR$_6$ (with blue-shifted ASE peak), respectively. (e), (f), (g) Excitation pulse intensity dependences of emissions at the ASE peak positions of NR$_4$, NR$_5$, and NR$_6$, respectively.
Figure S4. TRF decay curves of the NRs together with average least chi-square fitting lifetimes.

\[ \tau_{\text{avg}} = 16.4 \text{ ns (Type-I like)} \]
\[ \tau_{\text{avg}} = 23.0 \text{ ns (Type-II like)} \]
\[ \tau_{\text{avg}} = 23.7 \text{ ns (Type-II like)} \]