

Supplementary Information for:
Alternative motif toward high-quality wurtzite MnSe
nanorods via subtle sulfur element doping

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Table S1. Summary of the reaction conditions for corresponding S dopant content and crystal structure in MnSe NCs.

Samples	0.5 M OLA-S Precursor/mL	S-dopant molar content/%	T/°C	t/min	Crystal structure
S1	0.1	0.81	300	20	WZ
S2	0.4	3.88	300	20	WZ
S3	0.7	5.92	300	20	WZ
S4	1.0	8.91	300	20	WZ

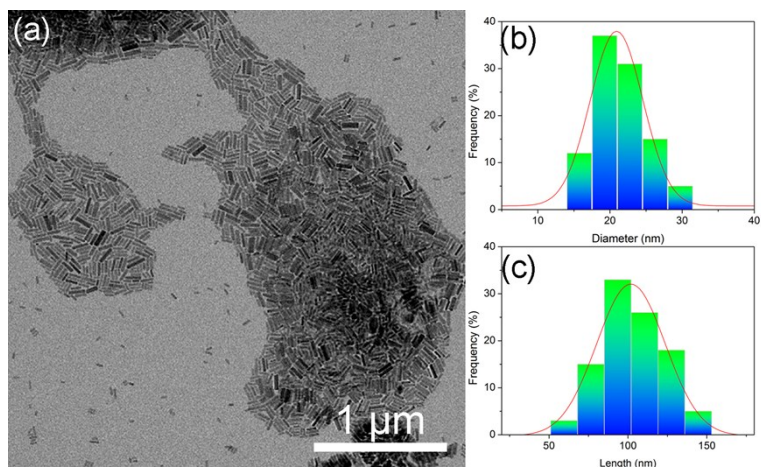


Fig. S1 (a) Typical low-magnification TEM image of the as-prepared WZ-type MnSe nanorods with ~6% S dopant. (b) Diameter and (c) length histograms of the nanorods.

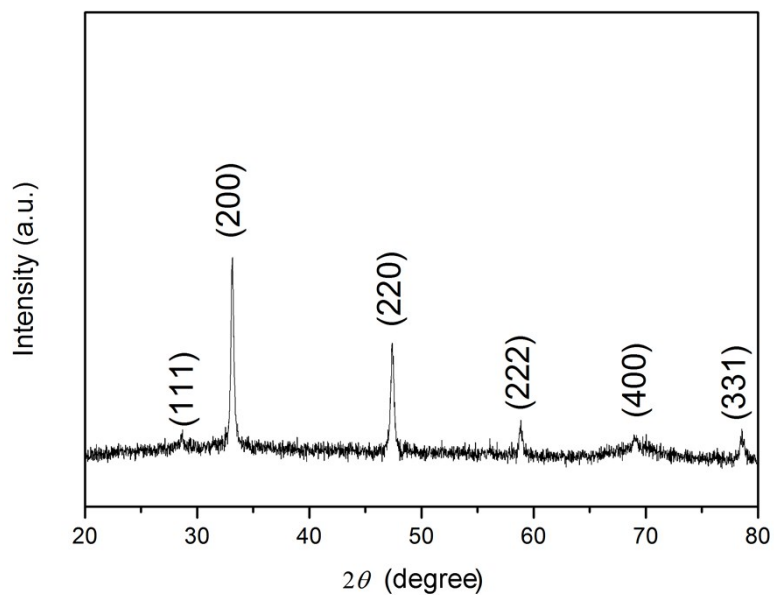


Fig. S2 Typical XRD pattern of the as-obtained RS-type MnSe nanoparticles, which was collected on a Shimadzu XRD-6000 diffractometer working with a Cu-Kα target.

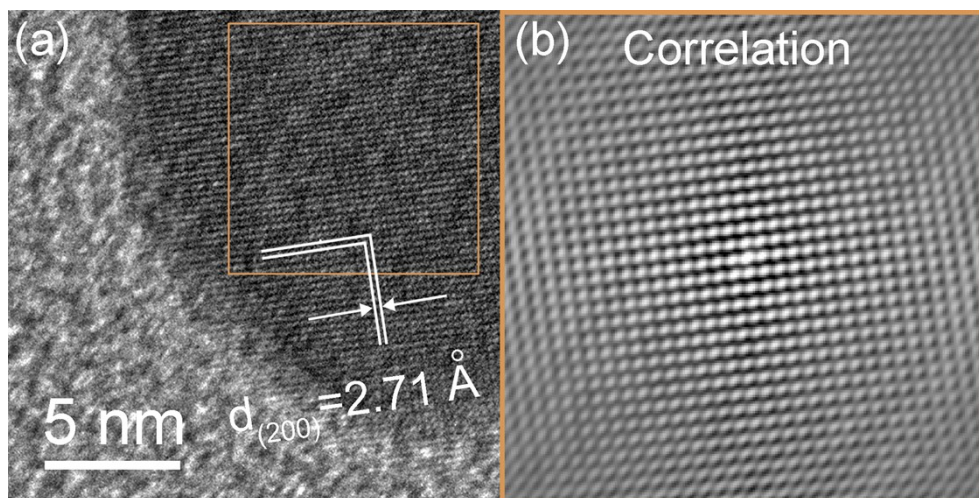


Fig. S3 (a) Representative HRTEM image of the as-obtained RS-type MnSe nanoparticles. (b) The corresponding selected area correlation pattern.

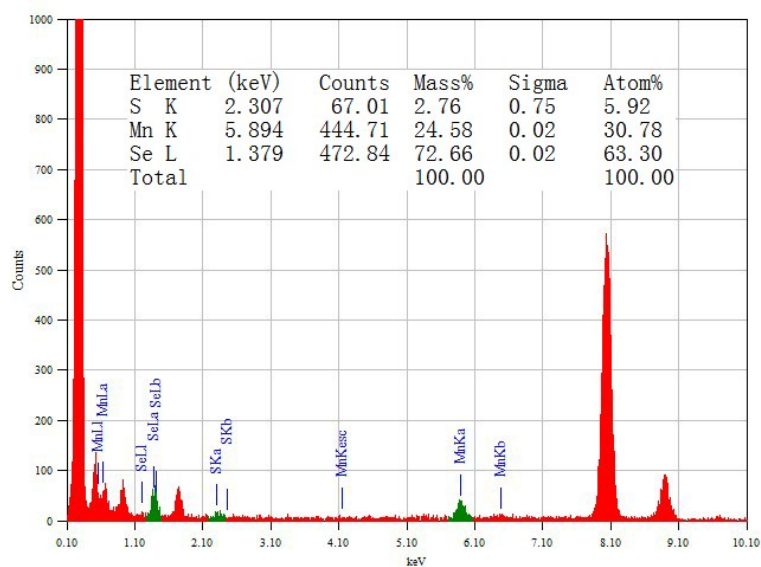


Fig. S4 EDX spectrum of the as-prepared ~6% S dopant WZ-MnSe nanorods.

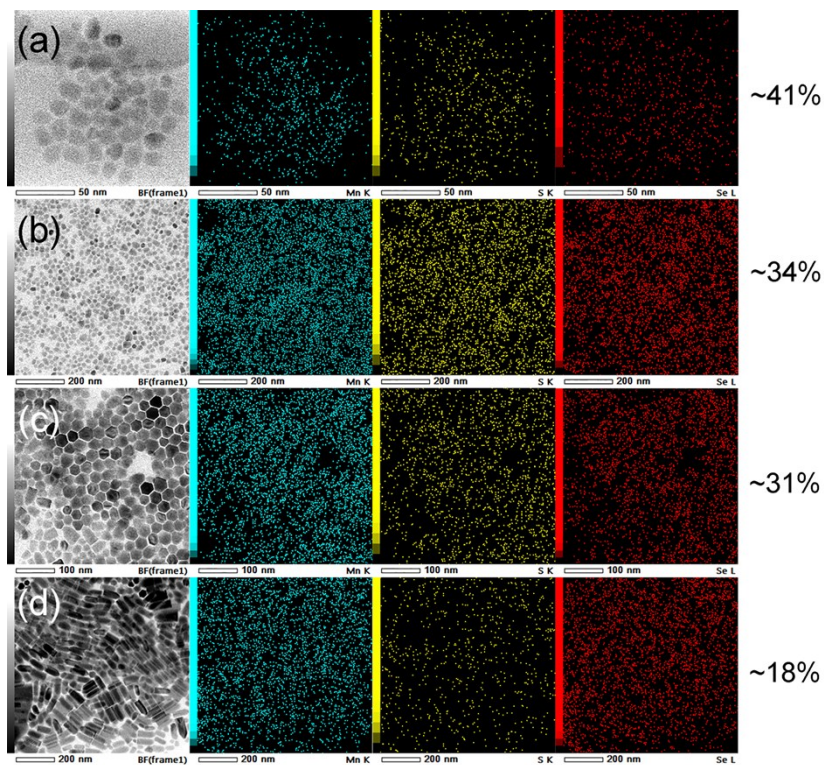


Fig. S5 STEM-bright field and element mapping (Mn, S and Se) images of the sample obtained at different reaction intervals: (a) 2, (b) 3, (c) 5, and (d) 8 min.

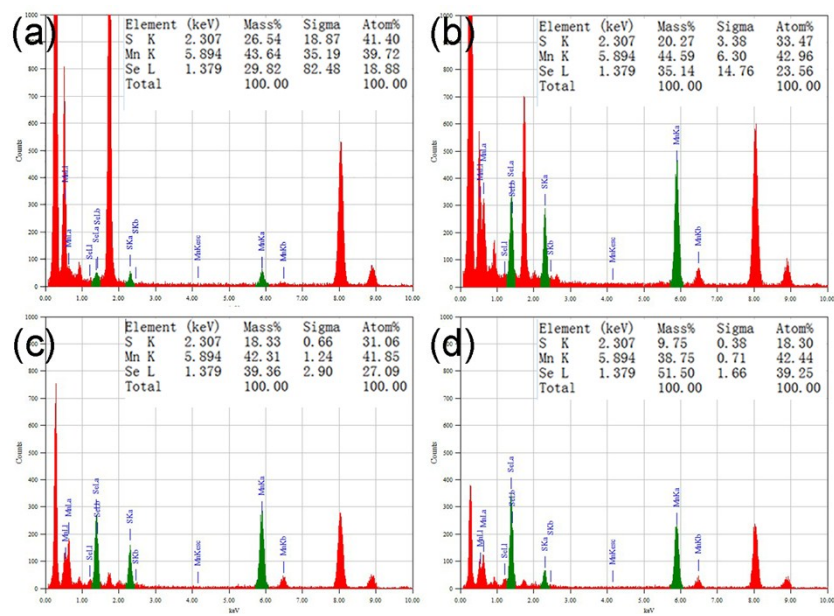


Fig. S6 EDX spectra of the sample obtained at different reaction intervals: (a) 2, (b) 3, (c) 5, and (d) 8 min.

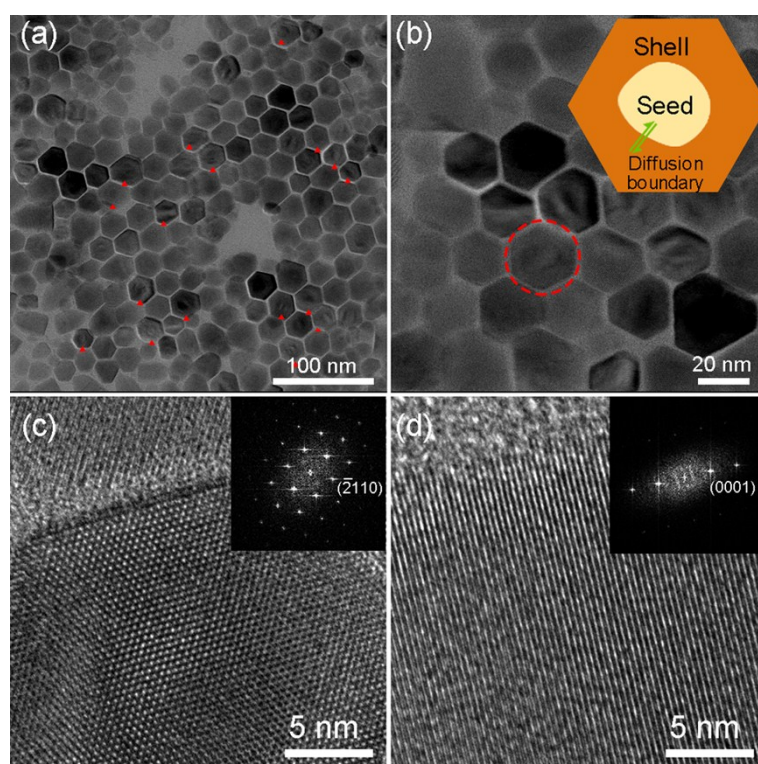


Fig. S7 (a, b) TEM and (c, d) HRTEM images of the sample obtained during reaction. Inset in (b) shows schematic illustration of the nanorod.

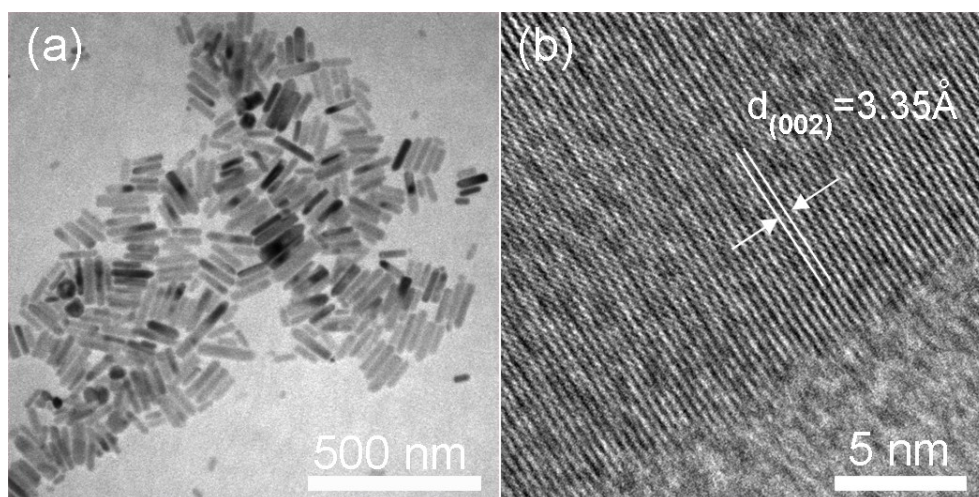


Fig. S8 (a) TEM and (b) HRTEM images of the S dopant WZ-MnSe nanorods synthesized with S powder.

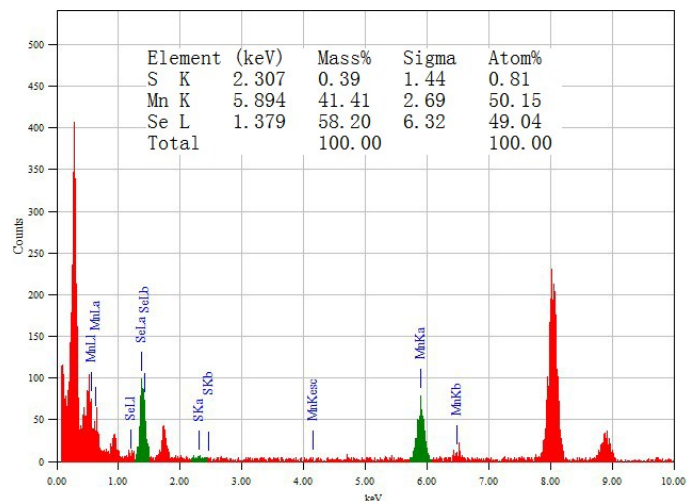


Fig. S9 EDX spectrum of the as-prepared ~1% S dopant WZ-MnSe nanorods.

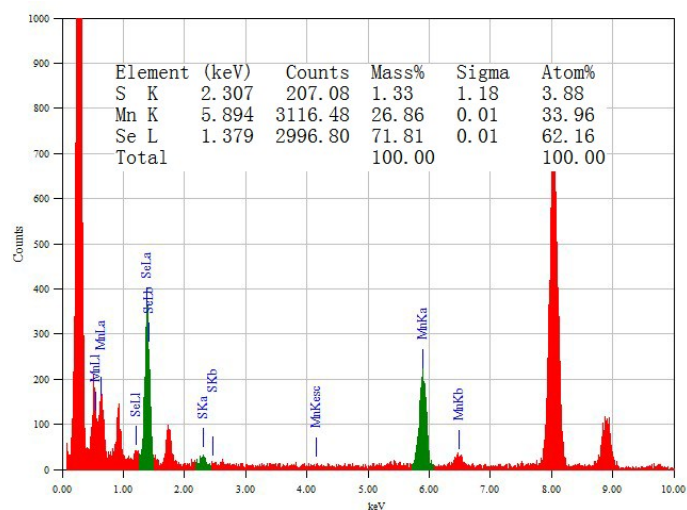


Fig. S10 EDX spectrum of the as-prepared ~4% S dopant WZ-MnSe nanorods.

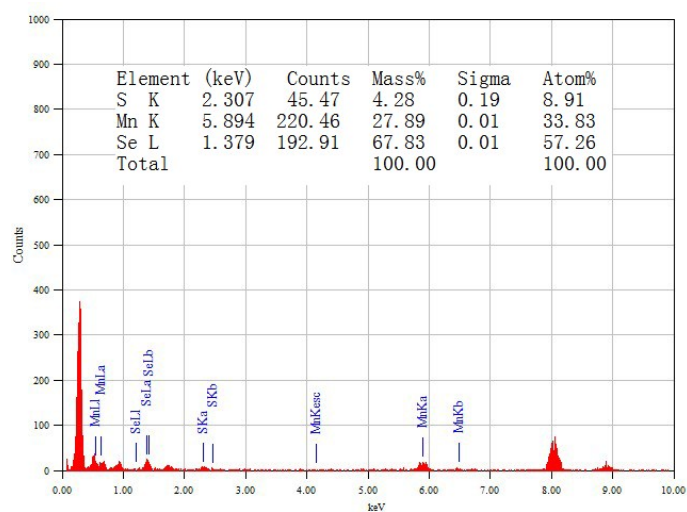


Fig. S11 EDX spectrum of the as-prepared ~9% S dopant WZ-MnSe nanorods.

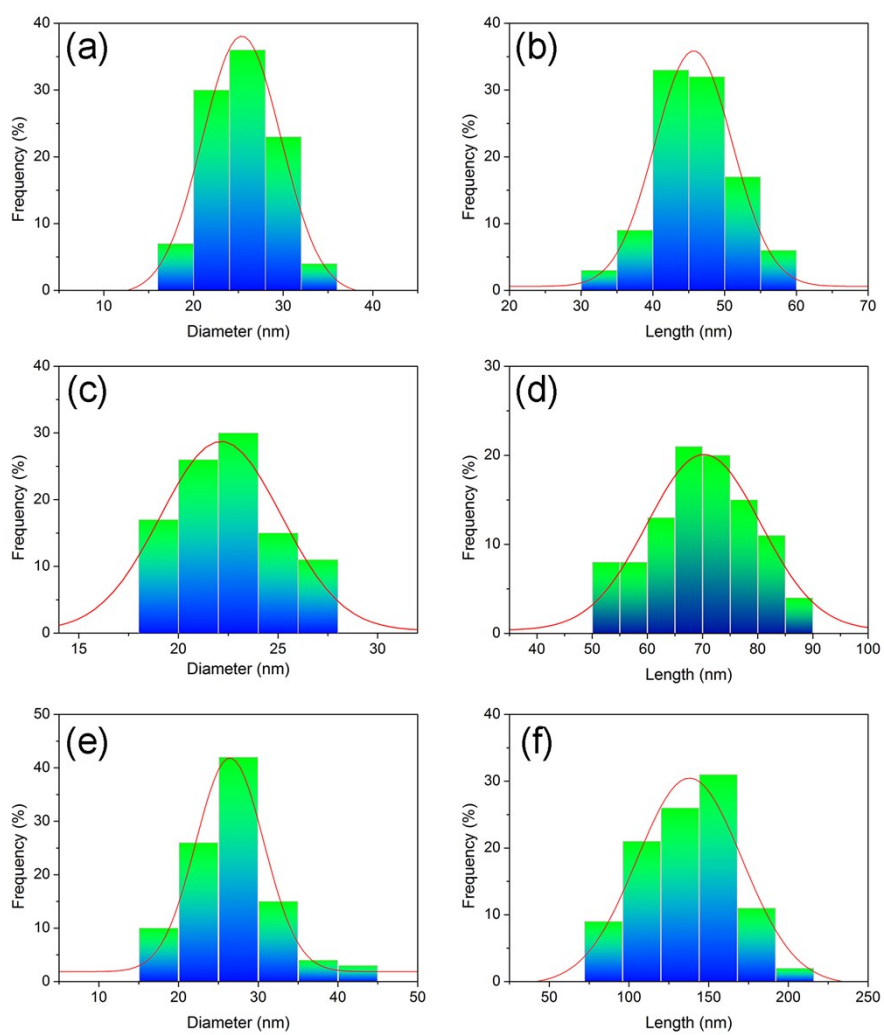


Fig. S12 Diameter and length histograms of the as-synthesized (a, b) ~1%, (c, d) ~4% and (e, f) ~9% S dopant WZ-type MnSe nanorods.