Supporting Information

Tailoring Sizes and Compositions of Heavy Pnictogen Bismuth Thiohalide Nanorods and Nanowires via Heat-Up Method

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KEYWORDS nanoparticle, nanorod, nanowire, metal chalcohalide, semiconductor, colloid

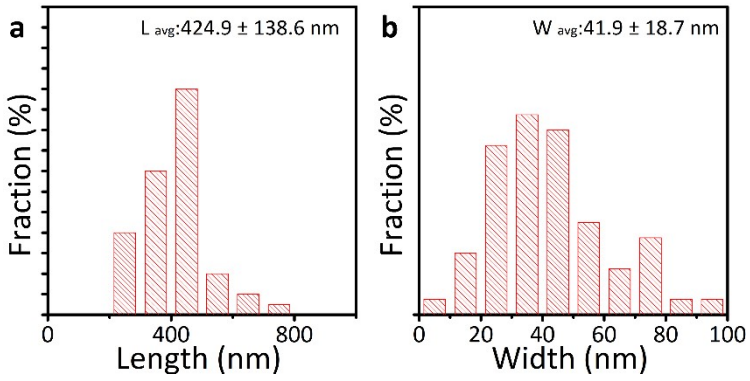


Fig. S1 Size distribution histogram of the BiSBr NRs with (a) average length of 424.9 ± 138.6 nm and (b) average width of 41.9 nm ± 18.7 nm.

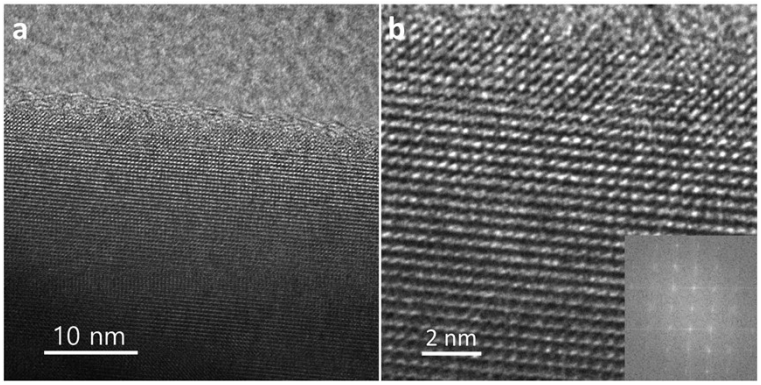
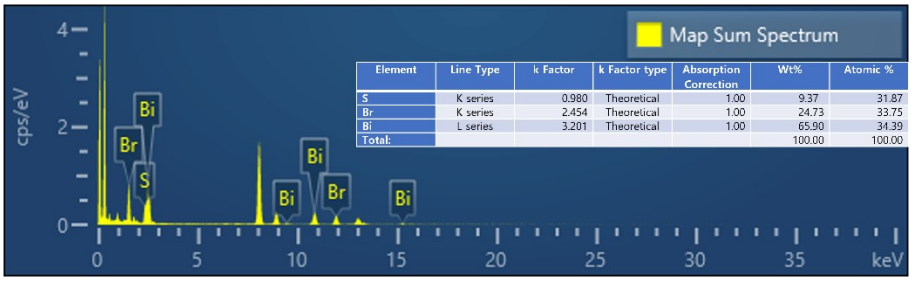


Fig. S2. High-resolution TEM images of the BiSBr NRs.



Element	Line Type	k Factor	k Factor type	Absorption Correction	Wt%	Atomic %
S	K series	0.980	Theoretical	1.00	9.37	31.87
Br	K series	2.454	Theoretical	1.00	24.73	33.75
Bi	L series	3.201	Theoretical	1.00	65.90	34.39
Total:					100.00	100.00

Fig. S3. STEM-EDS elemental analysis of BiSBr NRs

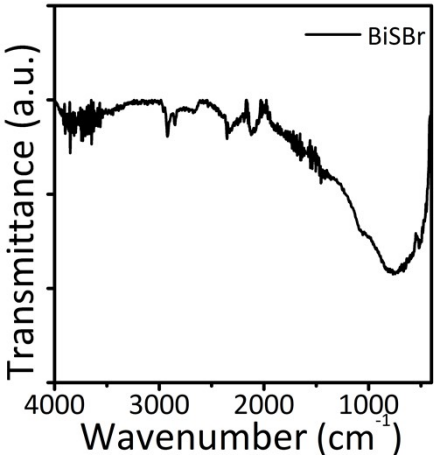


Fig. S4. FT-IR spectrum of the BiSBr NRs.

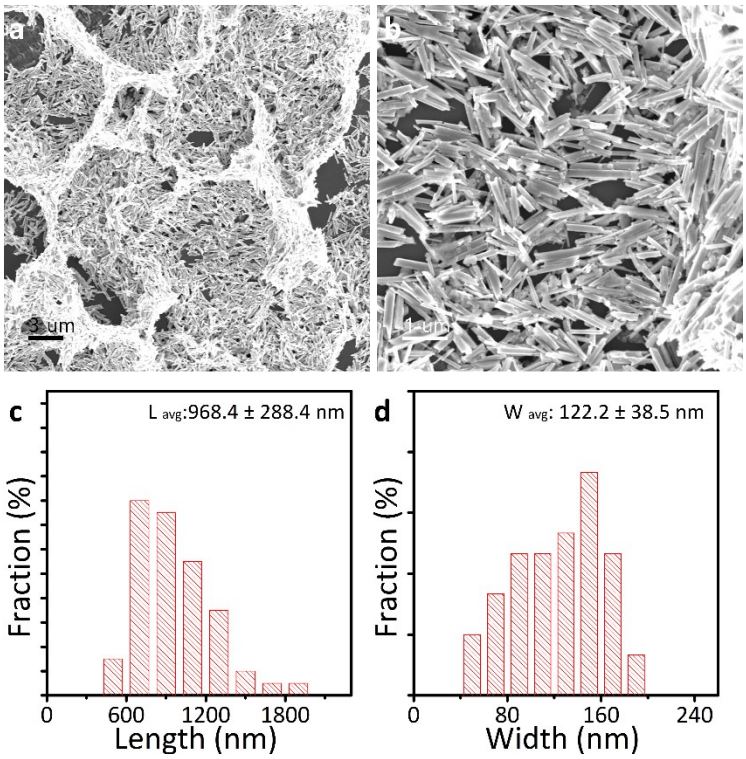


Fig. S5. (a-b) SEM images of the BiSBr NRs synthesized with 20 ml of ODE solvent; (c-d) size histograms of the length and width of the BiSBr NRs.

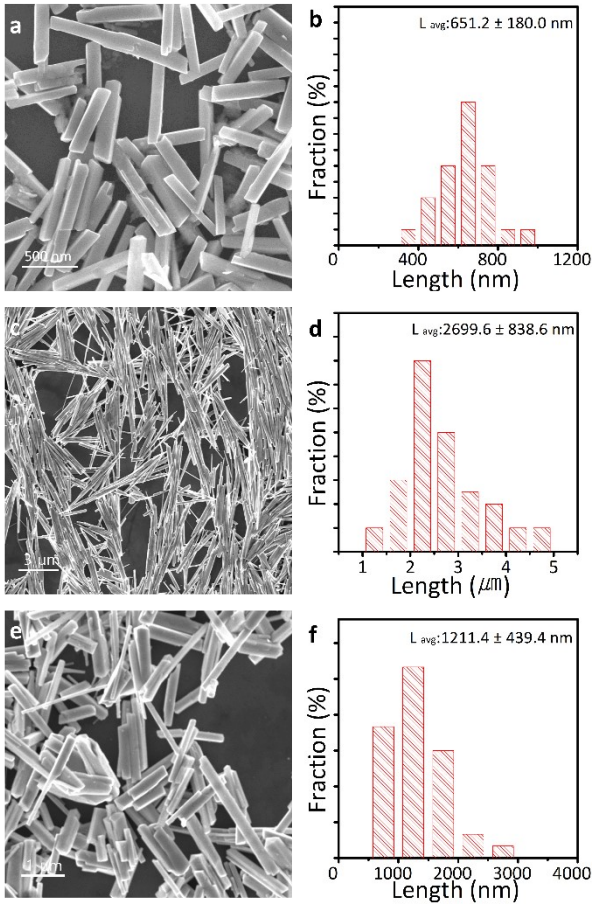


Fig. S6 SEM images and size histograms of the BiSBr NRs synthesized with (a-b) 0.04 g, (c-d) 0.1 g, and (e-f) 0.0075 g of sulfur, respectively.

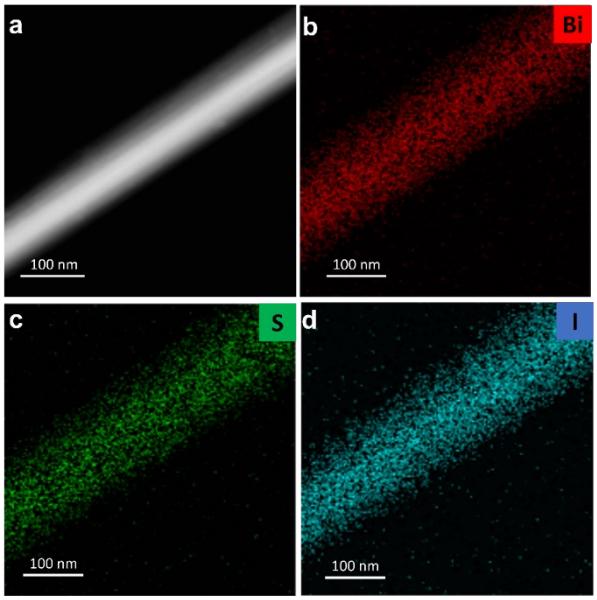


Fig. S7. (a) Dark-field STEM image and EDX elemental mapping images of (b) Bi, (c) S, and (d) I in a single BiSI NR.

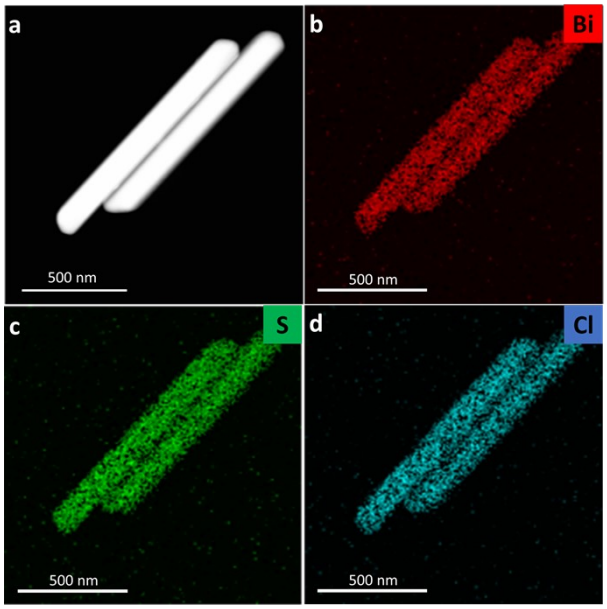


Fig. S8. (a) Dark-field STEM image and EDX elemental mapping images of (b) Bi, (c) S, and (d) Cl in a single BiSCl NR.

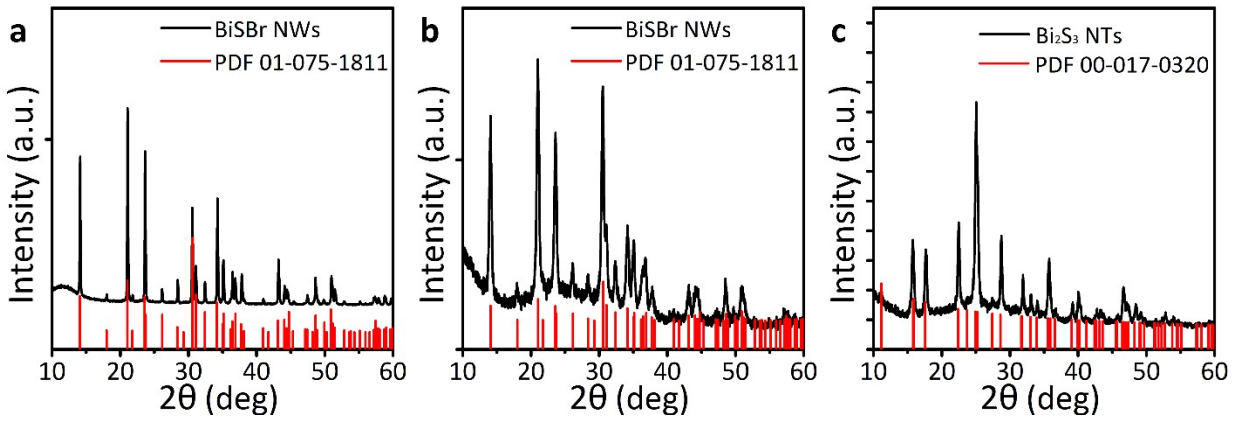


Fig. S9. XRD spectra of (a) BiSBr NRs synthesized with OA, (b) BiSBr NWs synthesized with DT, and (c) Bi_2S_3 NTs synthesized with OM solvents.

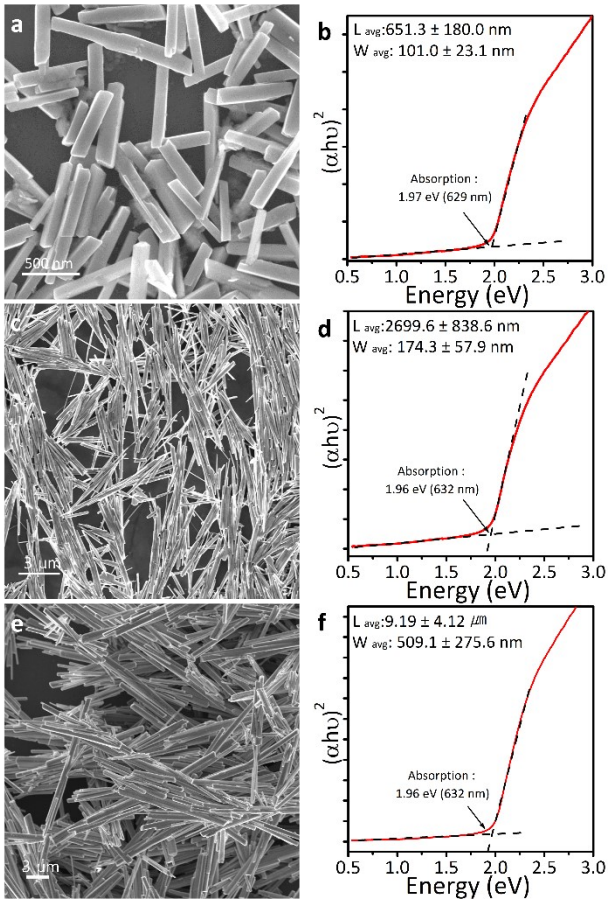


Fig. S10. SEM images and DRS spectra of the BiSBr NRs synthesized with (a-b) 0.04 g sulfur, (c-d) 0.1 g of sulfur, and (e-f) OA as solvent.

Fig. S11. Photographs of colloidal dispersion of the BiSBr NRs synthesized in ODE and the BiSBr NWs synthesized in DT.