

Hydrothermal synthesis and thermoelectric transport property of PbS/PbTe core-shell heterostructure†

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Table S1 Summary of the thermoelectric properties obtained under various conditions.

| Molar ratio of PbS to Te precursor, R | Temperature e (K) | Electrical conductivity (S/cm) | Seebeck coefficient ($\mu\text{V/K}$) | Power factor ($\mu\text{W/mK}^2$) |
|---------------------------------------|-------------------|--------------------------------|---|-------------------------------------|
| ∞ (Te=0) | 300 | 0.425 | 412 | 7.12 |
| ∞ (Te=0) | 600 | 3.132 | 100 | 3.12 |
| 25 | 300 | 1.011 | 352 | 12.53 |
| 25 | 600 | 17.385 | 301 | 157.5 |
| 20 | 300 | 1.109 | 318 | 11.21 |
| 20 | 600 | 24.020 | 350 | 294.24 |
| 10 | 300 | 1.242 | 308 | 11.78 |
| 10 | 600 | 26.789 | 219 | 128.48 |
| 5 | 300 | 1.578 | 307 | 14.87 |
| 5 | 600 | 28.535 | 218 | 135.61 |
| 2.5 | 300 | 1.794 | 308 | 17.02 |
| 2.5 | 600 | 35.132 | 158 | 87.71 |
| Mixed PbS/PbTe (molar ratio=20) | 300 | 0.625 | 382 | 9.12 |
| Mixed PbS/PbTe (molar ratio=20) | 600 | 5.122 | 216 | 23.90 |

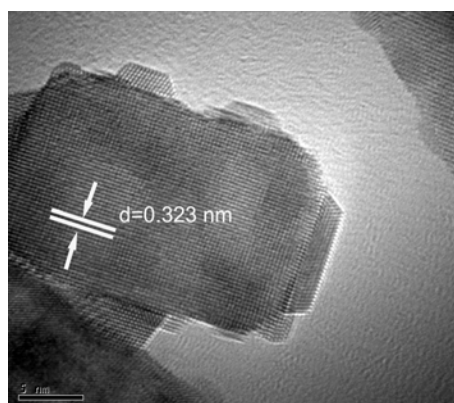


Fig. S1 The magnified HRTEM image of the single rectangular nanoparticle.

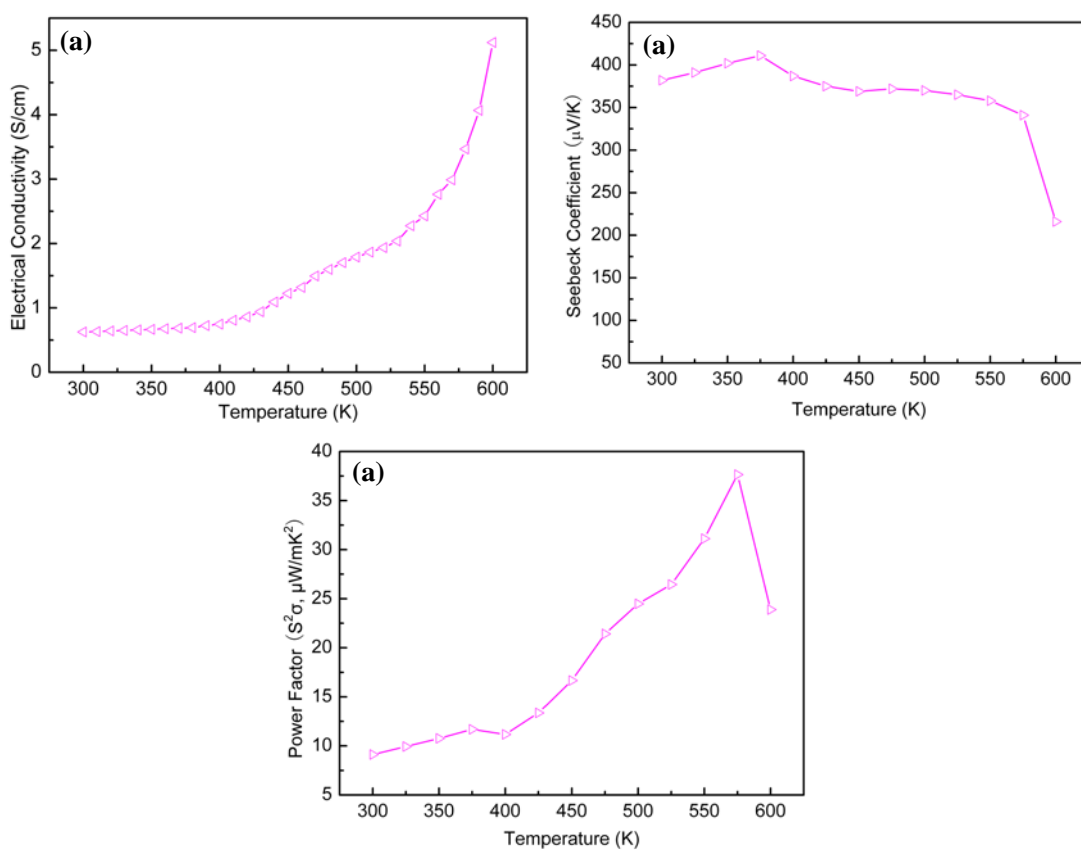


Fig. S2 Thermoelectric transport property as a function of temperature for the mixed PbS nanorods and PbTe nanoparticles with the molar ratio of 20.