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## **Support Information:**

## Strain-tuned optoelectronic property of Hollow Gallium sulfides microsphere

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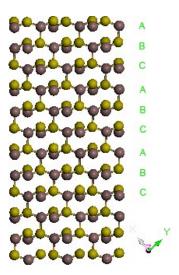
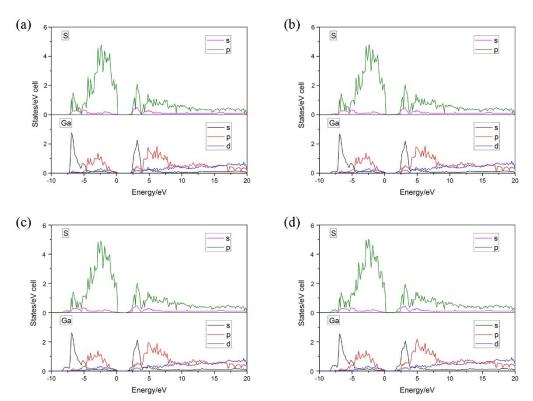


Figure S1. The crystal structure of  $Ga_2S_3$ . The stack sequence is ABC type along [110] axis.



**Figure S2.** The calculated DOS of samples at (a) 950 °C, (b) 900 °C, (c) 850 °C, (d) 800°C. With the increasing of growth temperature, the Ga-4p and S-3s state of the conduction regions shift towards the low energy area.