

Electrochemistry of layered GaSe and GeS: applications to ORR, OER and HER

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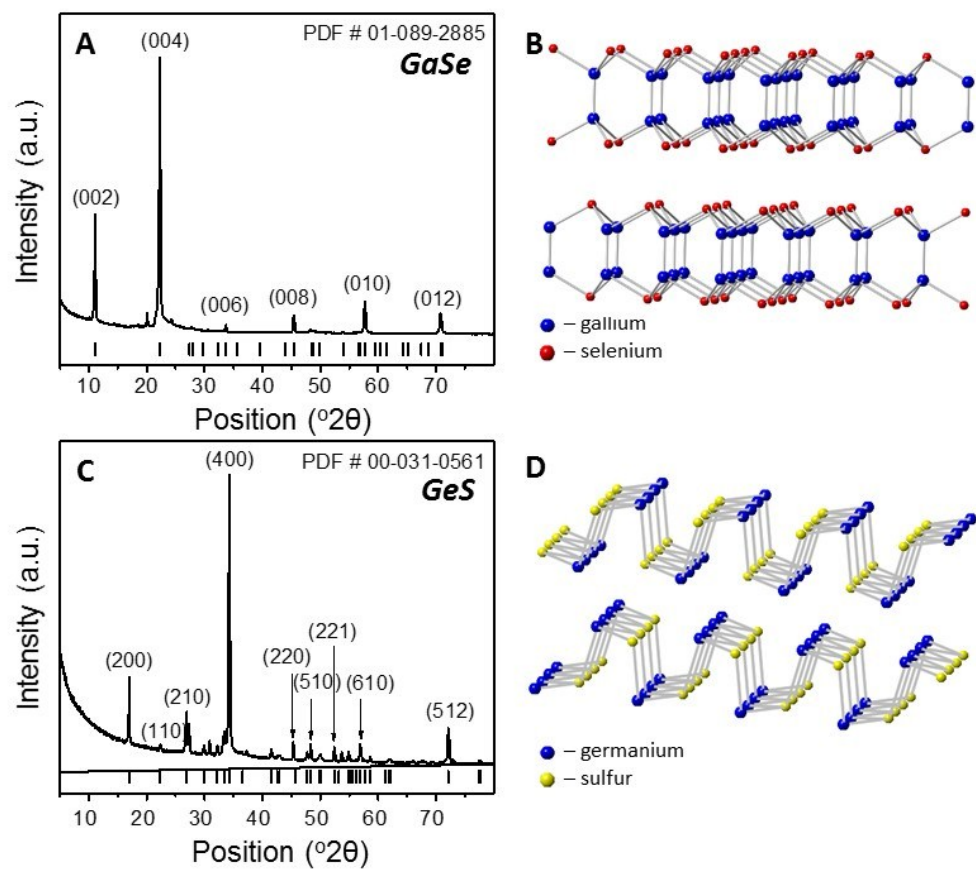


Figure S1 The X-ray diffraction patterns together with the corresponding structures of (A and B) *GaSe* and (C and D) *GeS*.

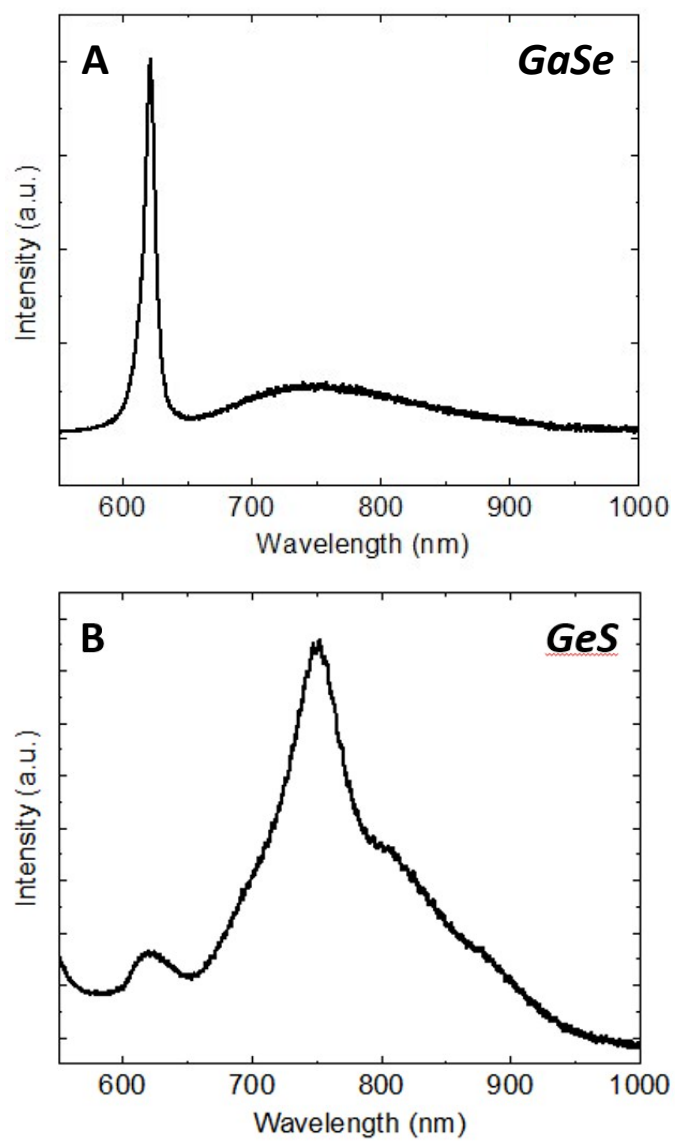


Figure S2 Photoluminescence spectra of (A) GaSe and (B) GeS.

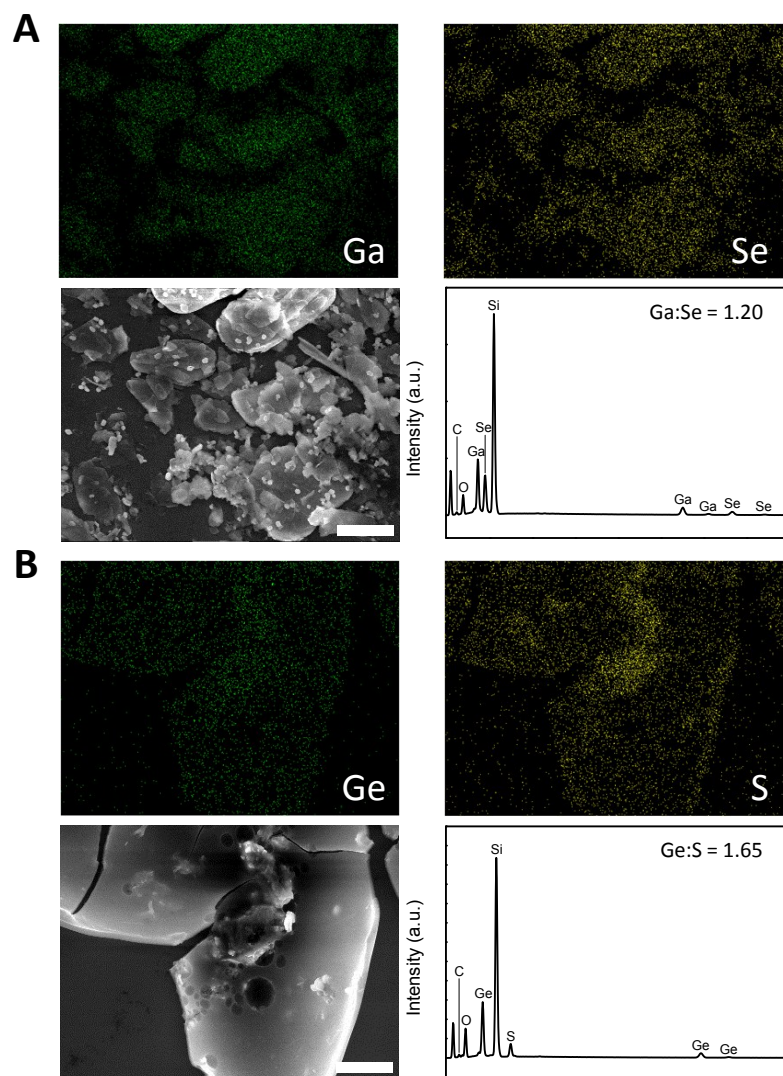


Figure S3 EDS mappings and elemental spectra of **(A)** GaSe and **(B)** GeS. The M:X ratios obtained from EDS are displayed. Scale bar represents 10 μm .

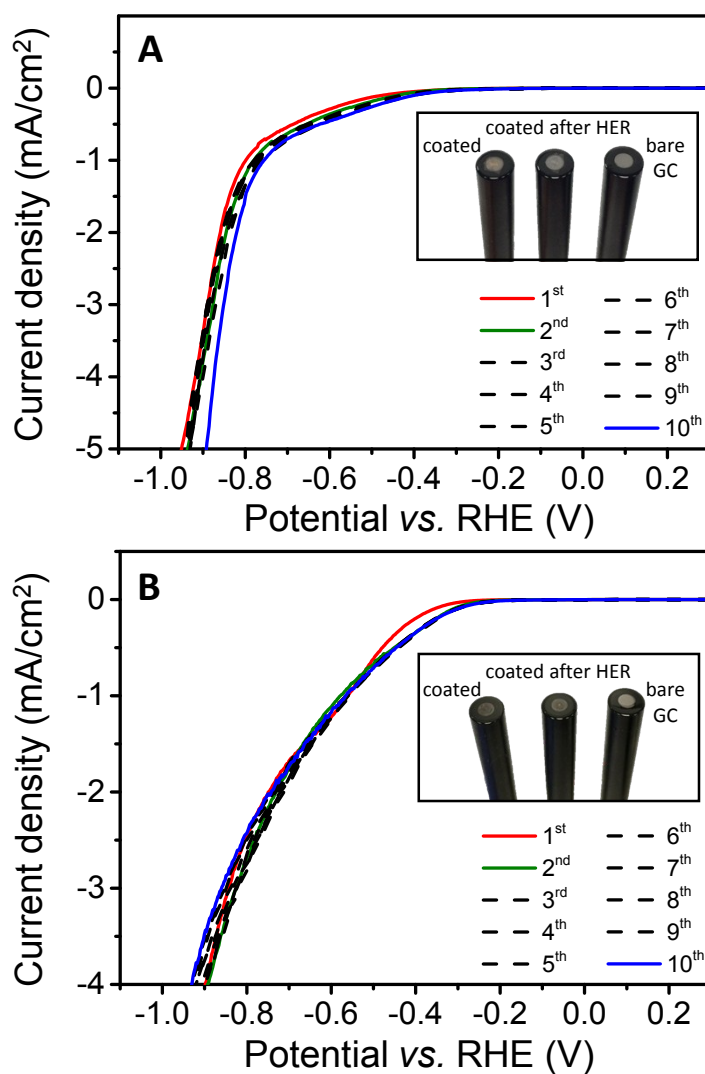


Figure S4 Ten repeated linear sweep voltammograms of hydrogen evolution reaction on (A) GaSe and (B) GeS.

Conditions: scan rate of 2 mV s^{-1} , $0.5 \text{ M H}_2\text{SO}_4$ as supporting electrolyte. (Insets) GC electrodes with various coatings of GaSe or GeS: (from left to right) material-modified, material-modified followed by HER measurements and then dried, and bare.



Figure S5 The crystals of GaSe and GeS obtained by slow cooling of reaction mixture in quartz ampoule. The scale bar corresponds to 10 mm.