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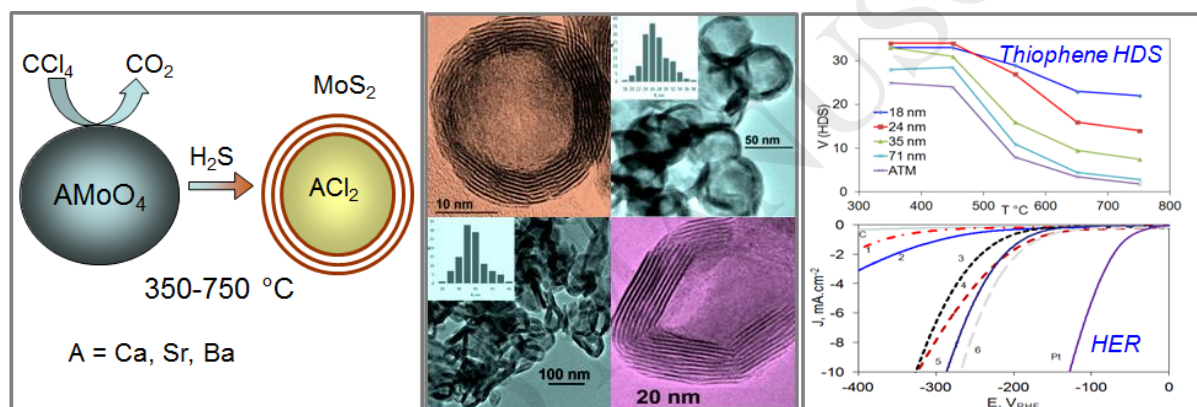
## Topotactic synthesis of size-tuned MoS<sub>2</sub> inorganic fullerenes that allows revealing particular catalytic properties of curved basal planes.

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### Graphical abstract



Highlights for “Topotactic synthesis of size-tuned MoS<sub>2</sub> inorganic fullerenes that allows revealing particular catalytic properties of curved basal planes”.

- ▶ New scalable method affords size-controlled “inorganic fullerenes” of MoS<sub>2</sub> sulfides
- ▶ Edges defectness and MoS<sub>2</sub> slabs curvature varied independently via particle size and temperature
- ▶ High HER and HDS activity related to slabs curvature persists even after treatment at 750 °C

### ABSTRACT

Size-tuned hollow nanoparticles of MoS<sub>2</sub> sulfides (“inorganic fullerenes”, IF) have been prepared using topotactic solid-gas reaction of nanoparticulate scheelites  $AMoO_4$  ( $A = Ca, Sr, Ba$ ) with  $H_2S/CCl_4$  mixtures in a wide range of temperatures. The hollow nanoparticles showed high specific surface areas and outstanding thermal stability. As shown by electron microscopy

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