

## ELECTRONIC SUPPORTING INFORMATION

Synthesis, crystal and electronic structure, and optical properties of two  
new chalcogenide-iodides:  $\text{Ba}_3Q_4\text{I}_2$  ( $Q = \text{S}, \text{Se}$ )

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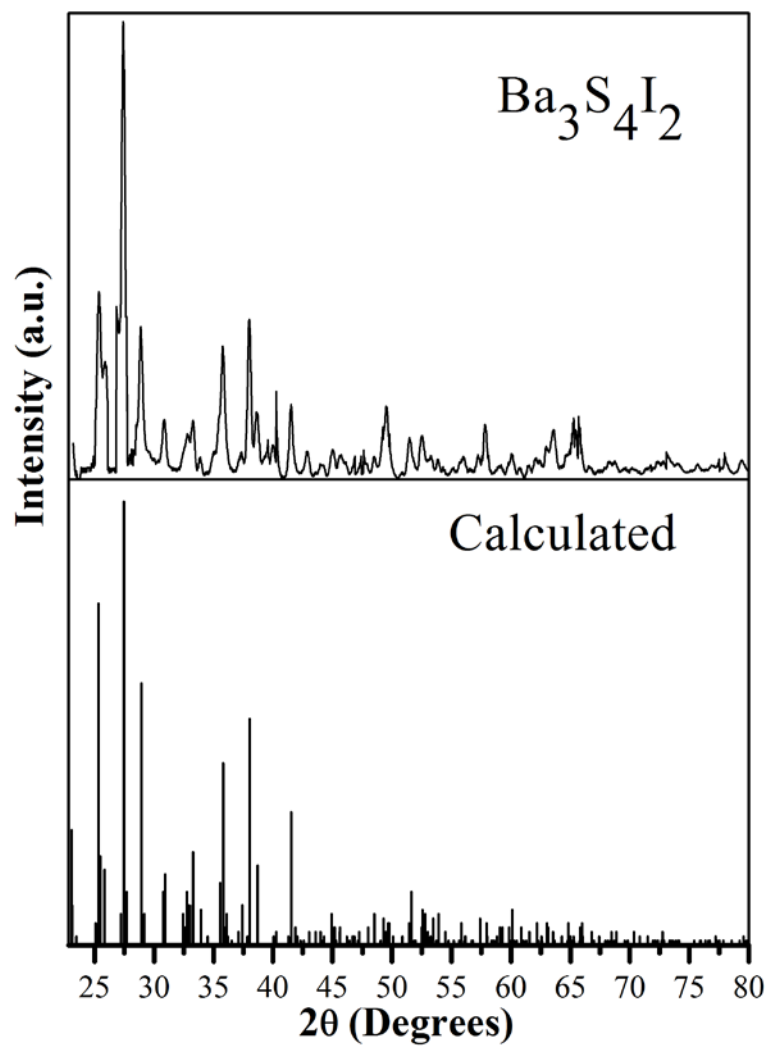


Figure S1. Experimental (top) and calculated (bottom) powder X-ray diffraction patterns for  $\text{Ba}_3\text{S}_4\text{I}_2$ .

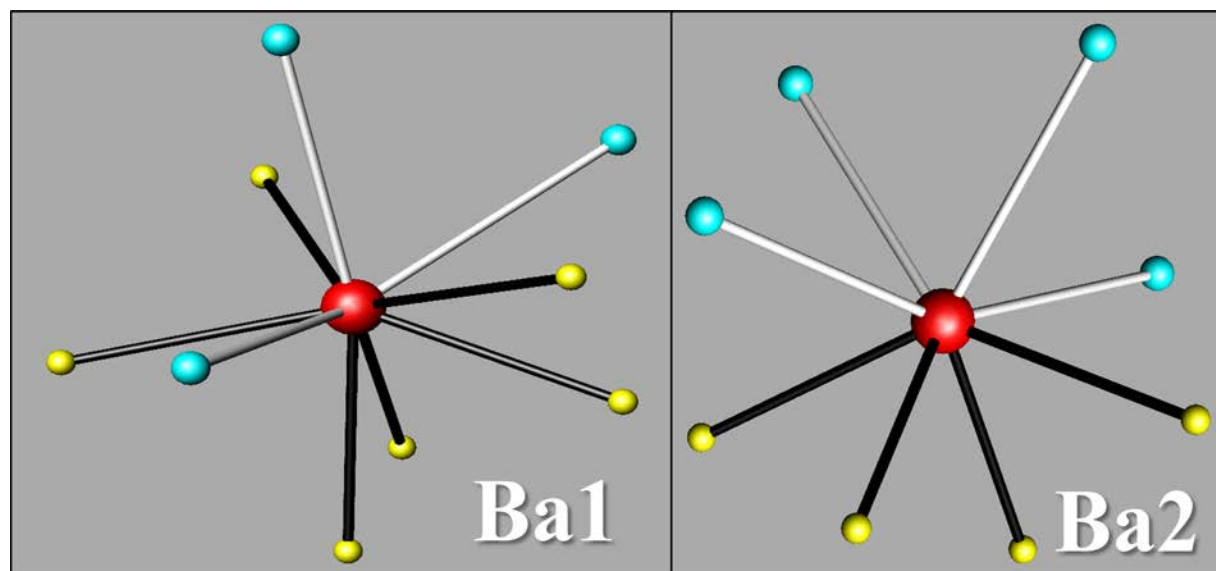


Figure S2. Coordination of the Ba1 and Ba2 atoms in the crystal structure of  $\text{Ba}_3\text{S}_4\text{I}_2$ .