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Anion size dependence of band gaps of iodido antimonates

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We synthesized $[\text{Hpyz}]_4[\text{Sb}_{10}\text{I}_{34}]$ (pyz = $\text{N}_2\text{C}_4\text{H}_4$), which features the largest discrete halogenido pentelate anion yet. Ions of this type with the general formula $[\text{Sb}_{2n}\text{I}_{3n+4}]^{4-}$ are known for $n = 1 - 5$. With this series of compounds at hand we investigated the influence of the anion size on the optical band gap by experimental and theoretical means to shed some more light on the electronic structure of iodido antimonates close to the absorption edge.

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