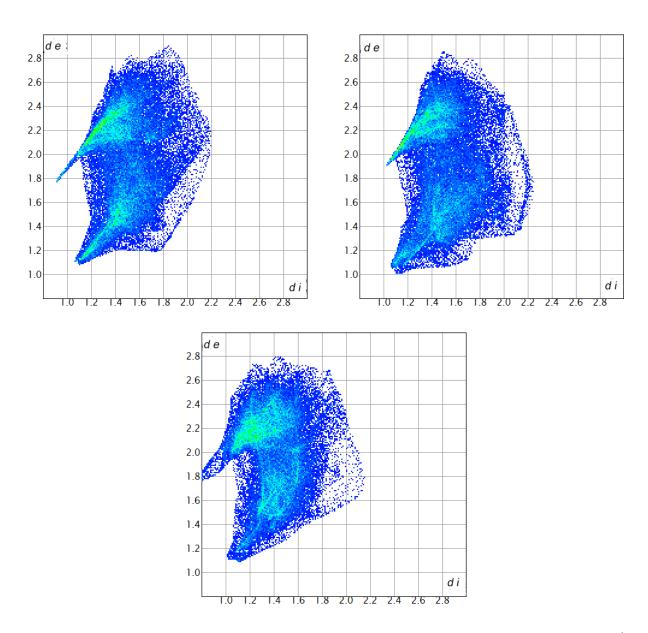
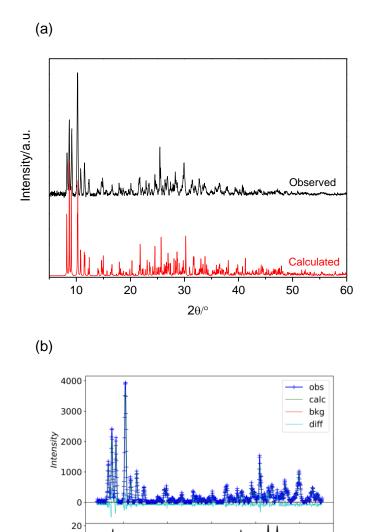
## **Supporting Information**

## Crystal structure of (C<sub>9</sub>H<sub>17</sub>N<sub>2</sub>)<sub>3</sub>Bi<sub>2</sub>I<sub>9</sub>

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**Figure S1.** The overall fingerprint plots for the three crystallographically-independent DBUH<sup>+</sup> cations.



**Figure S2.** (a) Experimental (black line) and calculated (red line) powder X-ray diffraction data for  $(C_9H_{17}N_2)_3Bi_2I_9$  (b) Pawley refinement using powder X-ray diffraction data for  $(C_9H_{17}N_2)_3Bi_2I_9$ , which resulted in the following lattice parameters: a=19.374(7), b=12.629(1), c=21.510(8) Å,  $\beta=116.08(1)^\circ$ .

30

15

0 δ/α

10

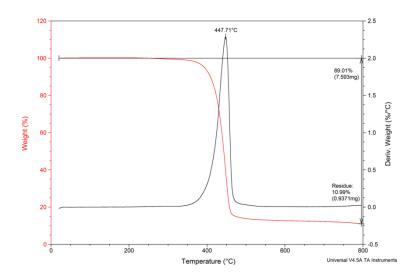


Figure S3. Thermogravimetric data for  $(C_9H_{17}N_2)_3Bi_2I_9$ , collected under a  $N_2$  atmosphere.