

# Supporting Information

## Halogen-Modulated Zinc-Based 0D Hybrids for High-Efficiency Blue Light Emission

Cheng-Fang Zhang,<sup>a†</sup> Wen-He Zhong,<sup>a†</sup> Peng-Cheng Ma,<sup>a</sup> Jia-Jia Zhao,<sup>\*a</sup> Ting Cheng,  
<sup>\*a,b</sup> and Li-Zhuang Chen,<sup>\*a</sup>

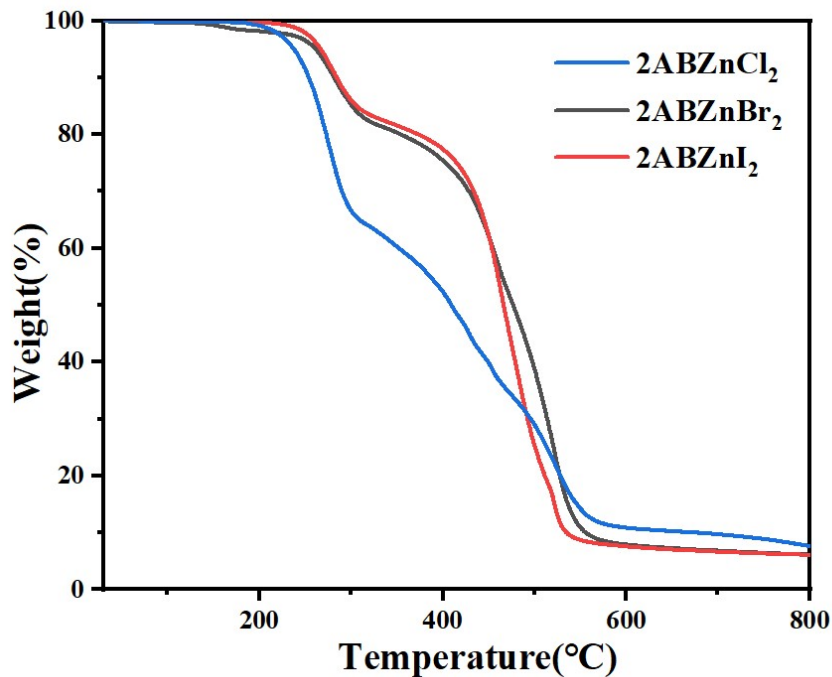
<sup>a</sup>School of Environmental and Chemical Engineering, Jiangsu University of Science  
and Technology, Zhenjiang 212003 (China)

<sup>b</sup>School of Environmental Ecology, The City Vocational College of Jiangsu, Nanjing  
210017, (China)

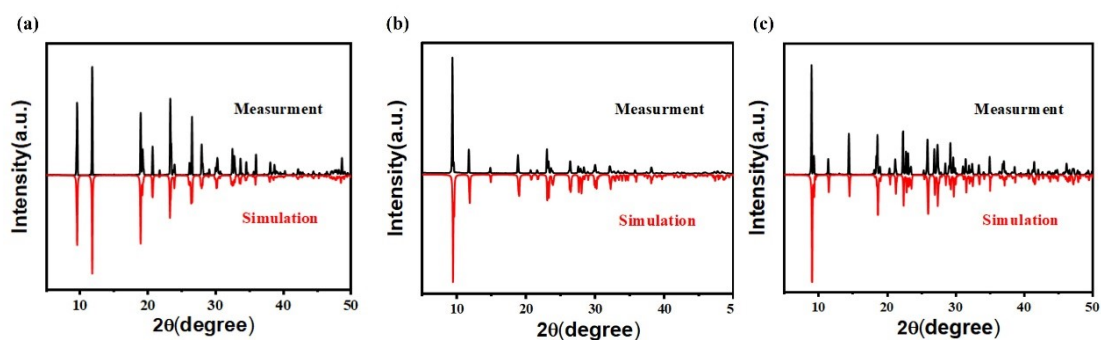
\*Corresponding author

Email address: clz1977@sina.com (L.-Z. Chen); zhaojjia@just.edu.cn (J.-J. Zhao)

†These authors contributed equally to this manuscript.



**Figure S1** The TG curves for  $2ABZnCl_2$ ,  $2ABZnBr_2$  and  $2ABZnI_2$ , indicating the decent thermal stability of the three compounds.



**Figure S2** Experimental powder X-ray diffraction patterns of  $2ABZnCl_2$ ,  $2ABZnBr_2$ ,  $2ABZnI_2$  match very well with the simulated ones based on the crystal structures at 296 K

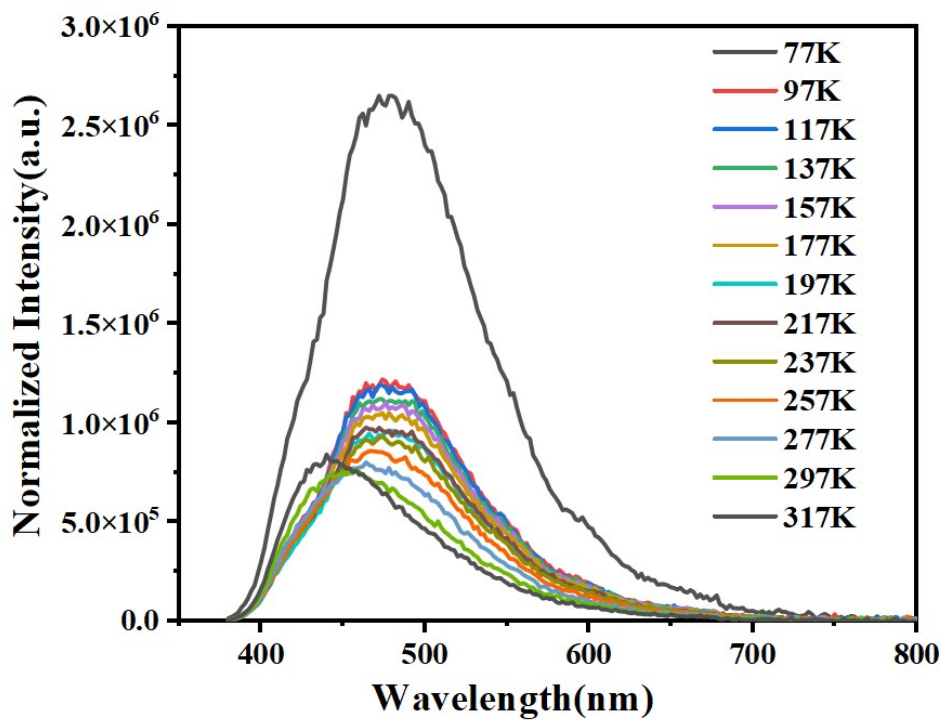


Figure S3 Temperature-dependent PL spectra of 2ABZnI<sub>2</sub> measured from 77 K to 317 K.

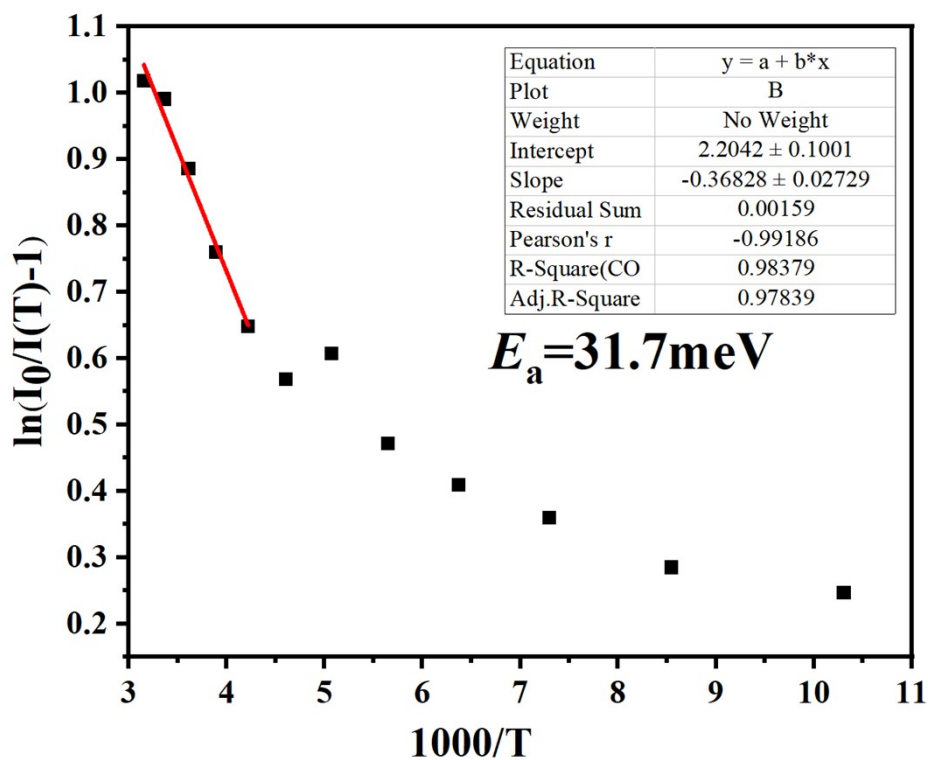


Figure S4 Arrhenius plot of the integrated PL intensity for 2ABZnI<sub>2</sub>.

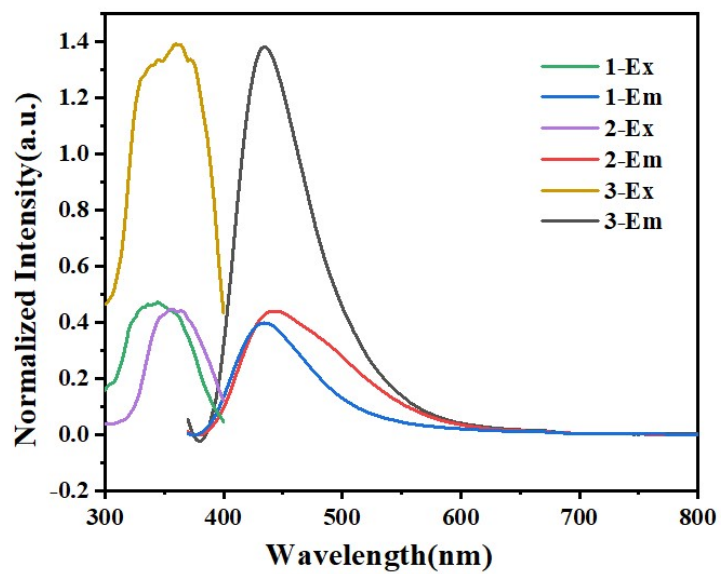


Figure S5 Excitation-emission spectra of 2ABZnCl<sub>2</sub>, 2ABZnBr<sub>2</sub>, and 2ABZnI<sub>2</sub>

**Table S1** Crystal data and structure refinements for crystals **1-3**.

Formula	<b>2ABZnCl<sub>2</sub></b>	<b>2ABZnBr<sub>2</sub></b>	<b>2ABZnI<sub>2</sub></b>
Formula weight	408	497.18	319.18
Temperature / K	296.15	296.15	296.15
Crystal system	triclinic	monoclinic	monoclinic
Space group	<i>P2<sub>1</sub>/c</i>	<i>C2/c</i>	<i>C2/c</i>
a/Å	19.022(7)	23.863(13)	23.3146(4)
b/Å	4.845(7)	4.8456(2)	4.8922(1)
c/Å	19.210(2)	18.19697(2)	19.1901(4)
α/deg	90	103.52	90
β/deg	90	127.809	90
γ/deg	90	127.040	90
Volume/Å <sup>3</sup>	1721.4(12)	1735.5	1822.08(7)
Z	4	4	4
Density g/cm <sup>3</sup>	1.577	1.873	2.163
R1[I≥2σ(I)]	0.0378	0.0292	0.0256
wR2[I≥2σ(I)]	0.1098	0.1027	0.0585
GOF	1.020	1.197	1.028