The growth of $Cs_3Cu_2Br_5$ and $CsCu_2Br_3$ single crystals by cooling crystallization for scintillator application

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Supporting Information

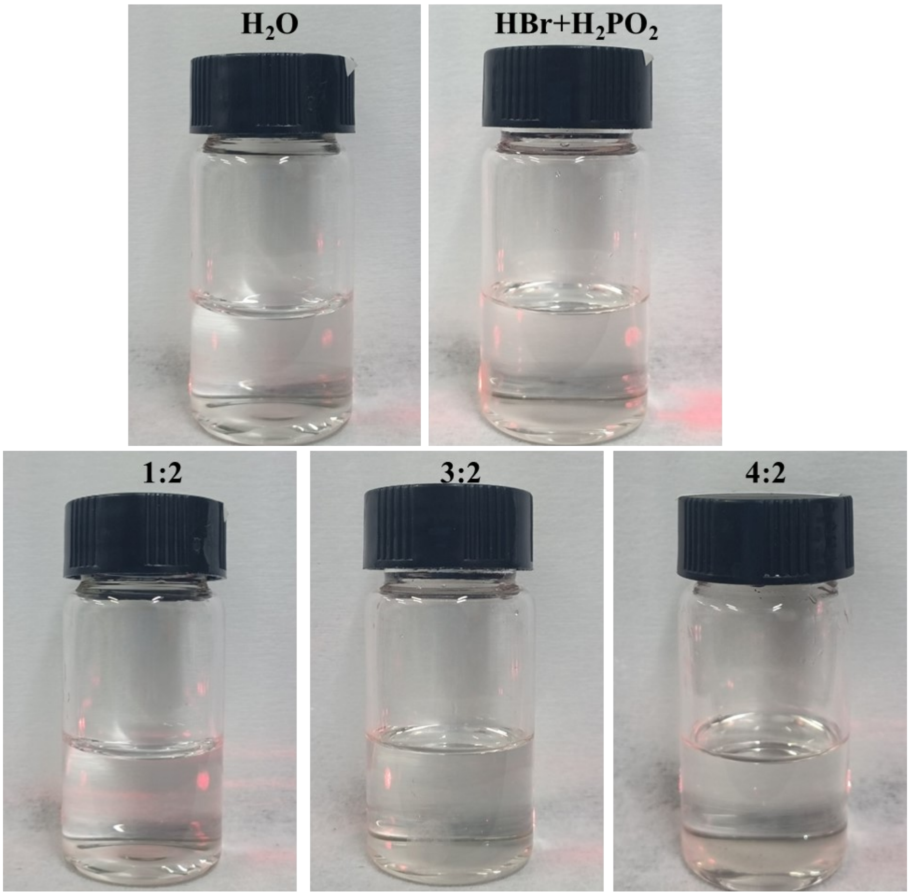


Fig. S1 Tyndall effect in solution

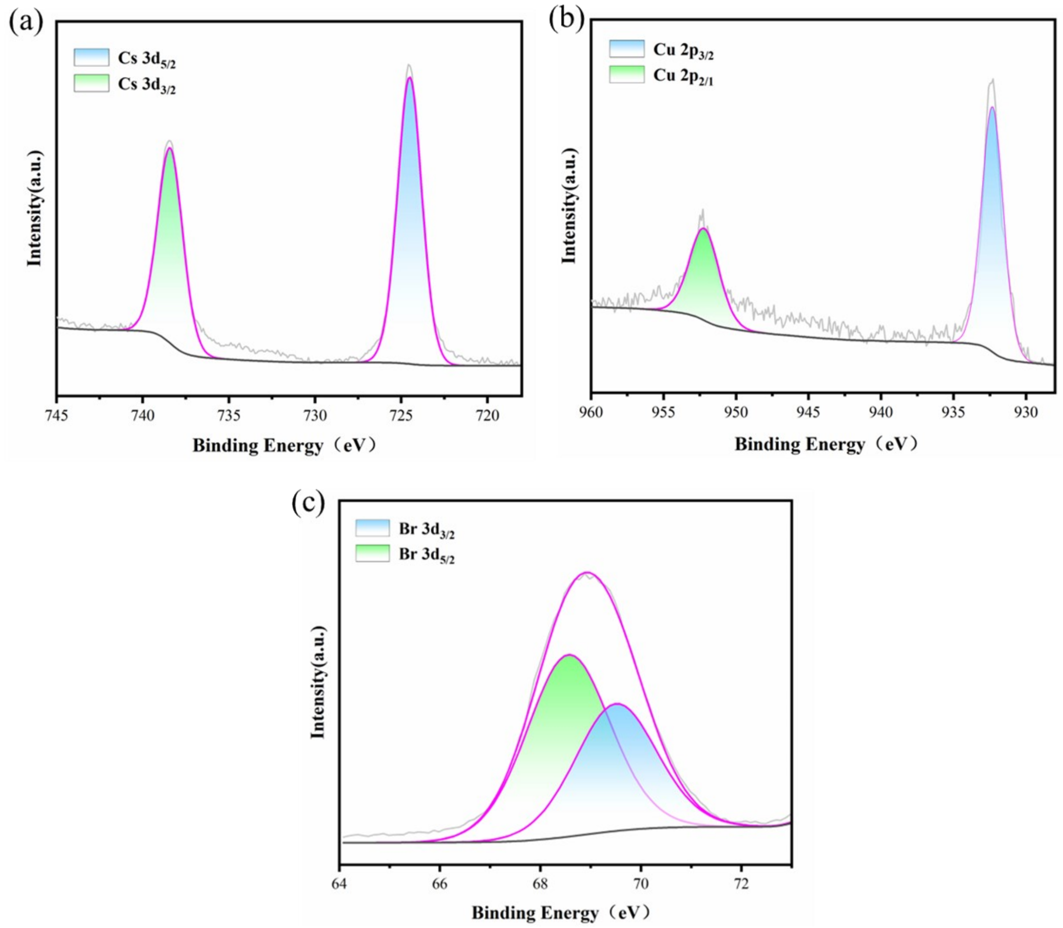


Fig. S2 XPS analysis of (a) Cs 3d, (b) Cu 2p, and (c) Br 3d of $Cs_3Cu_2Br_5$ crystal powder.

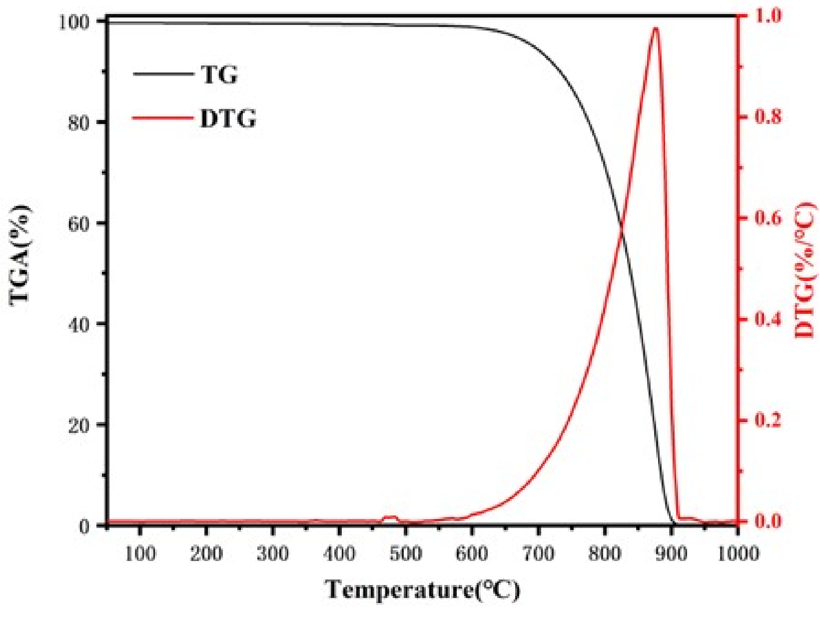
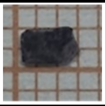
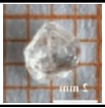
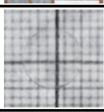


Fig. S3 TG and DTG curves of $Cs_3Cu_2Br_5$.

Table S1 Current research on $Cs_3Cu_2Br_5$ single crystals

	Preparation method	Crystal picture	Excitation (nm)	Emission (FWHM) (nm)	TRPL (us)	Light yield (photon·MeV^{-1})	Energy resolution	Afterglow	Reference
$Cs_3Cu_2Br_5$	AVC		298	458(80)	15.77	/	/	/	1
	EC		301	464(78)	20.03	/	/	/	2
	VB		311	453(69)	13.6	4000	/	Comparable to BGO	3
	LTC		310	456(83)	15.6	6384	17.50%	6%@10ms	Our work
$CsCu_2Br_3$	LTC		266	580(68)	/	5800	/	0.07 %@3ms	Our work

Cooling crystallization method: LTC; Evaporation crystallization method: EC; Bridgman method: VB; Antisolvent method: AVC

Table S2 the reported research work on $Cs_3Cu_2Br_5$ and $CsCu_2Br_3$ (non-single crystal)

	Sample state	Excitation (nm)	Emission (FWHM) (nm)	TRPL (us)	E_b (meV)	PLQY(%)	Reference
$Cs_3Cu_2Br_5$	powder	300	460(78)	16.88	/	27.38	4
		298	460(83)	/	630	23	5
		298	455(75)	/	400	50.1	6
		290	461(82)	29	720	17.3	7
	nanocrystals	290	451(93)	/	/	/	8
		290	458(79)	21.69	/	11.6	9
		268	459(85)	18.4	/	6.3	10
		290	451(93)	/	/	/	11
	film	270	463	/	/	/	12
$CsCu_2Br_3$	polycrystalline ingots	325	533(106)	0.018	155	18.3	13

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