

Highly luminescent molten salts containing well shielded lanthanide centered complex anions and bulky imidazolium counteractions

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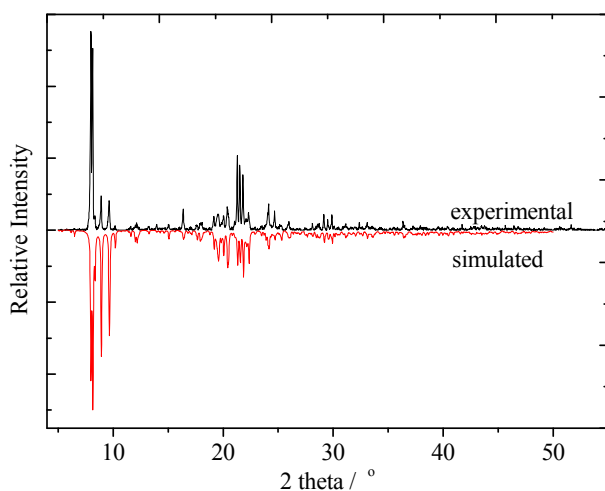


Figure S1. XRD diagram of compound 1.

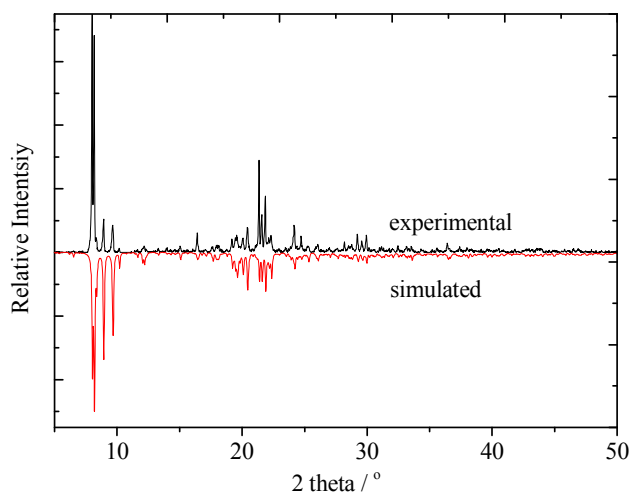


Figure S2. XRD diagram of compound 2.

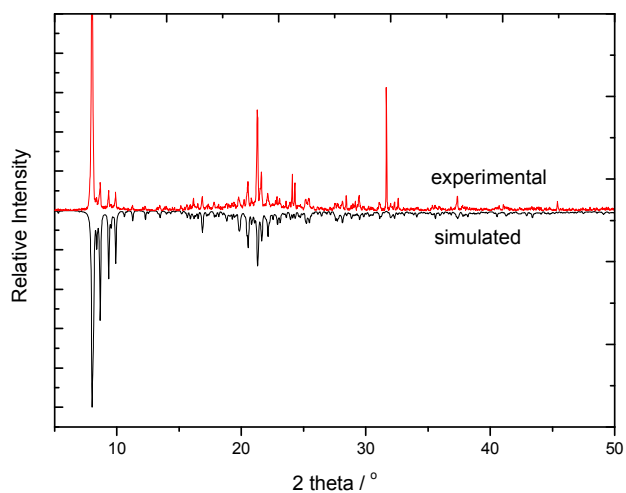


Figure S3. XRD diagram of compound **3**.

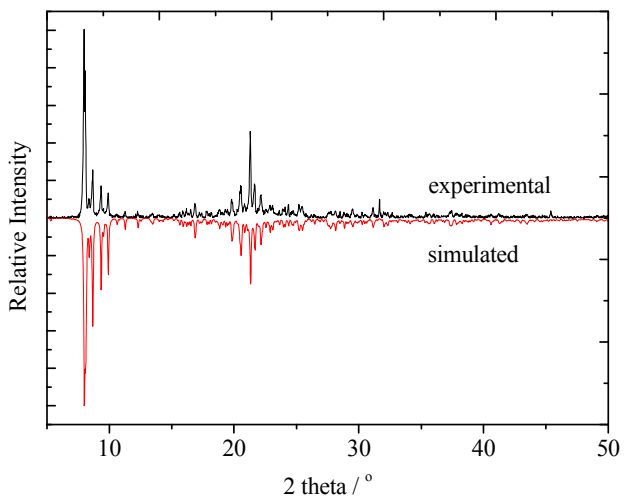


Figure S4. XRD diagram of compound **4**.

Table S1. Specified C-H \cdots O hydrogen bonds (with esds except fixed and riding H)

D-H	H \cdots A	D \cdots A	\angle (DHA)	
1				
0.93	2.41	3.204(10)	143.1	C50-H50A...O2_\$1
0.93	2.46	3.193(10)	135.6	C50-H50A...O10_\$1
0.93	2.48	3.219(12)	136.2	C51-H51A...O26
0.93	2.84	3.622(12)	143.0	C52-H52A...O21
0.93	2.55	3.323(12)	140.9	C52-H52A...O34
0.93	2.63	3.142(11)	115.3	C56-H56A...O6
0.93	2.27	3.169(10)	161.7	C56-H56A...O14
0.93	2.58	3.263(12)	130.9	C57-H57A...O30_\$2
0.93	2.47	3.389(14)	170.8	C57-H57A...O32_\$2

0.93	2.60	3.364(13)	140.1	C58-H58A...O22_\$2
0.93	2.78	3.546(12)	140.2	C58-H58A...O25_\$2
0.93	3.06	3.645(13)	122.1	C51-H51A...O29
2				
0.93	2.44	3.226(10)	142.8	C50-H50A...O2_\$1
0.93	2.45	3.200(10)	137.4	C50-H50A...O10_\$1
0.93	2.51	3.248(12)	136.2	C51-H51A...O26
0.93	2.84	3.621(11)	142.8	C52-H52A...O21
0.93	2.55	3.324(12)	140.5	C52-H52A...O34
0.93	2.61	3.149(11)	117.4	C56-H56A...O6
0.93	2.28	3.177(10)	160.5	C56-H56A...O14
0.93	2.55	3.254(12)	132.8	C57-H57A...O30_\$2
0.93	2.46	3.375(15)	168.0	C57-H57A...O32_\$2
0.93	2.57	3.358(14)	142.1	C58-H58A...O22_\$2
0.93	2.79	3.545(13)	139.1	C58-H58A...O25_\$2
0.93	3.04	3.644(13)	124.0	C51-H51A...O29
3				
0.93	2.49	3.13(3)	126.1	C50-H50A...O2
0.93	2.30	3.15(3)	153.0	C50-H50A...O10
0.93	2.54	3.32(4)	141.7	C51-H51A...O18
0.93	2.46	3.17(4)	134.2	C52-H52A...O30
0.93	2.47	3.29(4)	147.6	C59-H59A...O22
0.93	2.85	3.55(3)	132.7	C60-H60A...O26
0.93	2.52	3.25(3)	135.1	C58-H58A...O6_\$1
0.93	2.40	3.24(3)	150.8	C58-H58A...O14_\$1
4				
0.93	2.47	3.126(10)	128.0	C50-H50A...O2
0.93	2.32	3.163(10)	151.0	C50-H50A...O10
0.93	2.55	3.323(11)	140.9	C51-H51A...O18
0.93	2.49	3.200(12)	133.1	C52-H52A...O30
0.93	2.47	3.305(11)	149.3	C59-H59A...O22
0.93	2.87	3.568(11)	132.5	C60-H60A...O26
0.93	2.54	3.260(10)	134.1	C58-H58A...O6_\$1
0.93	2.37	3.229(10)	153.0	C58-H58A...O14_\$1

\$1 x, y+1, z; \$2 x+1, y, z

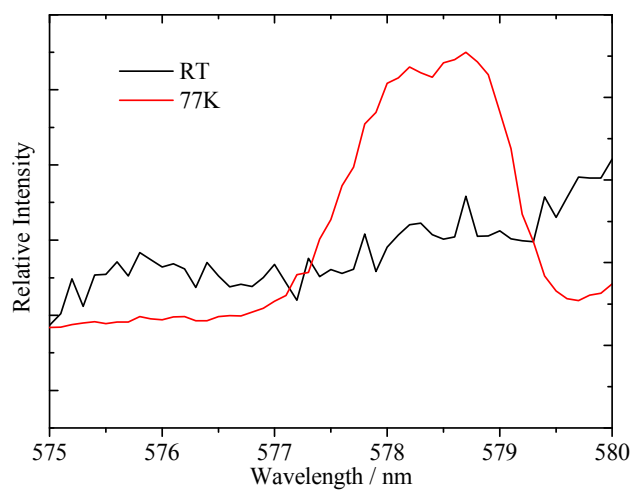


Figure S5. 5D_0 - 7F_0 transition observed in compound **1**.

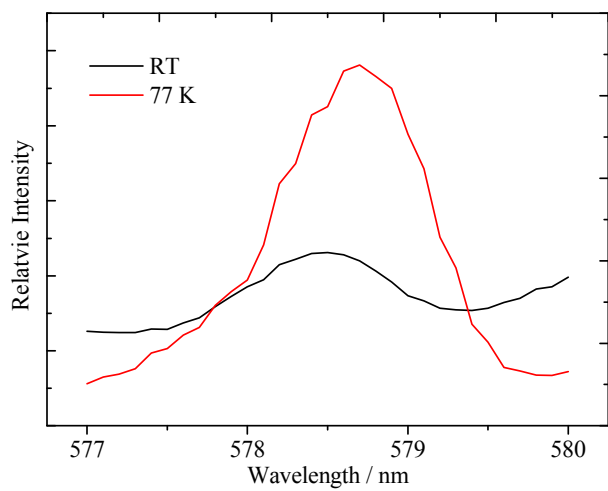


Figure S6. 5D_0 - 7F_0 transition observed in compound **3**.