Supplementary Materials
Magnetic, Optical, and Thermic Properties of $SrLnCuSe_3$ (Ln = Dy, Ho, Er, Tm) Compounds

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Table S1. Main parameters of processing and refinement of the SrTmCuSe3 samples

Compound	$SrTmCuSe_3$
Sp. Gr.	*Cmcm*
a (Å)	4.06935(6)
b (Å)	13.4758(2)
c (Å)	10.46441(15)
V (Å^3)	573.844(15)
Z	2
2θ-interval, ^{o}	10-108
R_{wp} ,%	4.6
R_p ,%	3.35
χ^2	1.99
R_B ,%	2.56

Table S2. Fractional atomic coordinates and isotropic displacement parameters (Å2) of SrTmCuSe3

Atom	*x*	*y*	*z*	B_{iso}	*Occ.*
Tm	0	0	0	1.99(14)	1
Sr	0	0.74970(18)	0.25	1.99(15)	1
Cu	0	0.4692(3)	0.25	2.47(19)	1
Se1	0	0.0763(2)	0.25	2.22(17)	1
Se2	0	0.36198(18)	0.06490(18)	2.11(15)	1

Table S3. Main bond lengths (Å) of SrTmCuSe3.

Tm—Se1	2.81090(98)	Tm—Se2^{i}	2.8391(16)
Sr—Se1^{ii}	3.0984(27)	Sr—Se2^{ii}	3.1907(19)
Cu—Se1^{ii}	2.4945(28)	Cu—Se2	2.4165(31)

Symmetry codes: (i) x+1/2, y+1/2, z; (ii) x+1/2, y+1/2, z

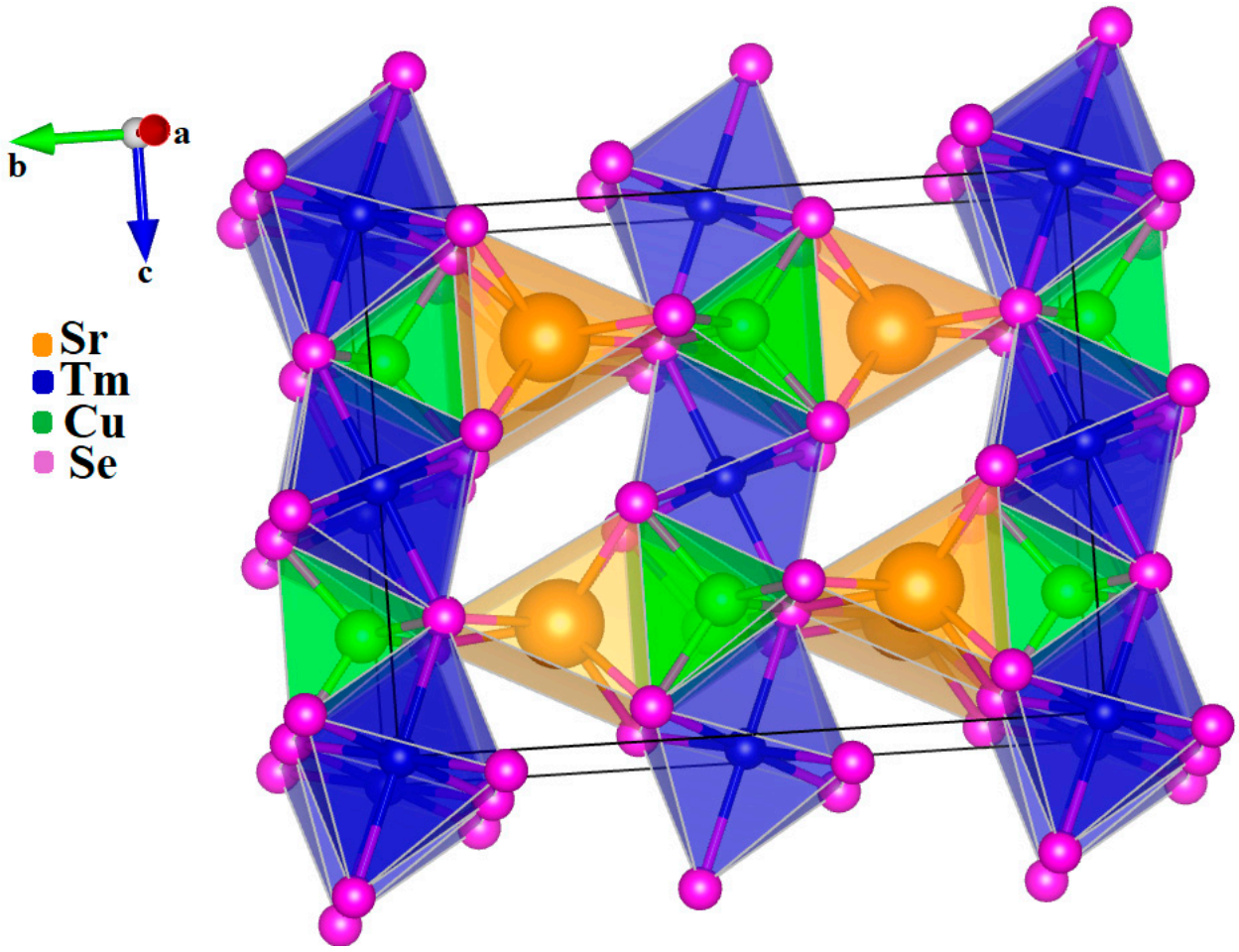

Figure S1. Polyhedral structure of SrTmCuSe3.

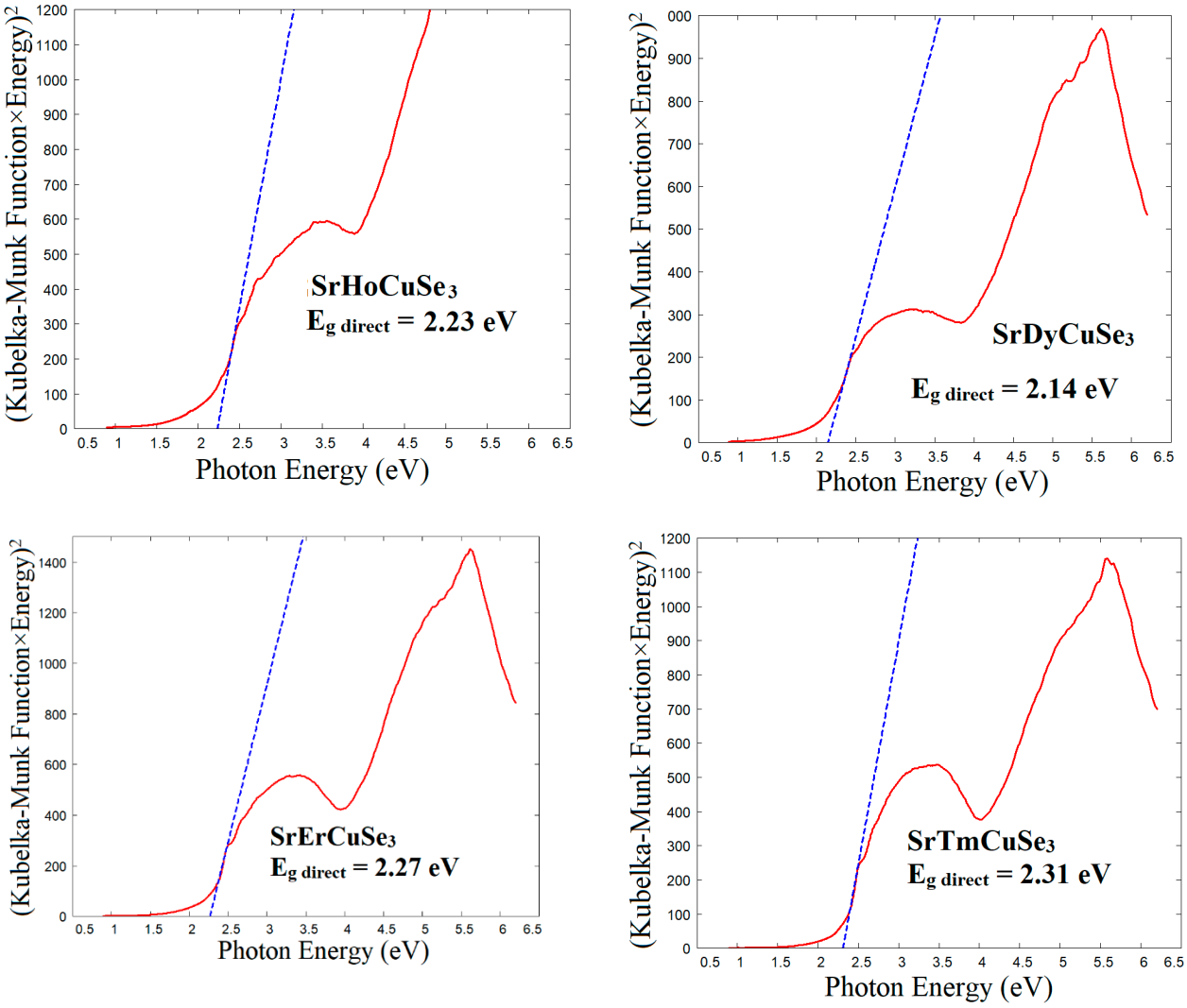

Figure S2. Kubelka-Munk Functions for determination of direct bandgaps in $SrLnCuSe_3$ crystals.

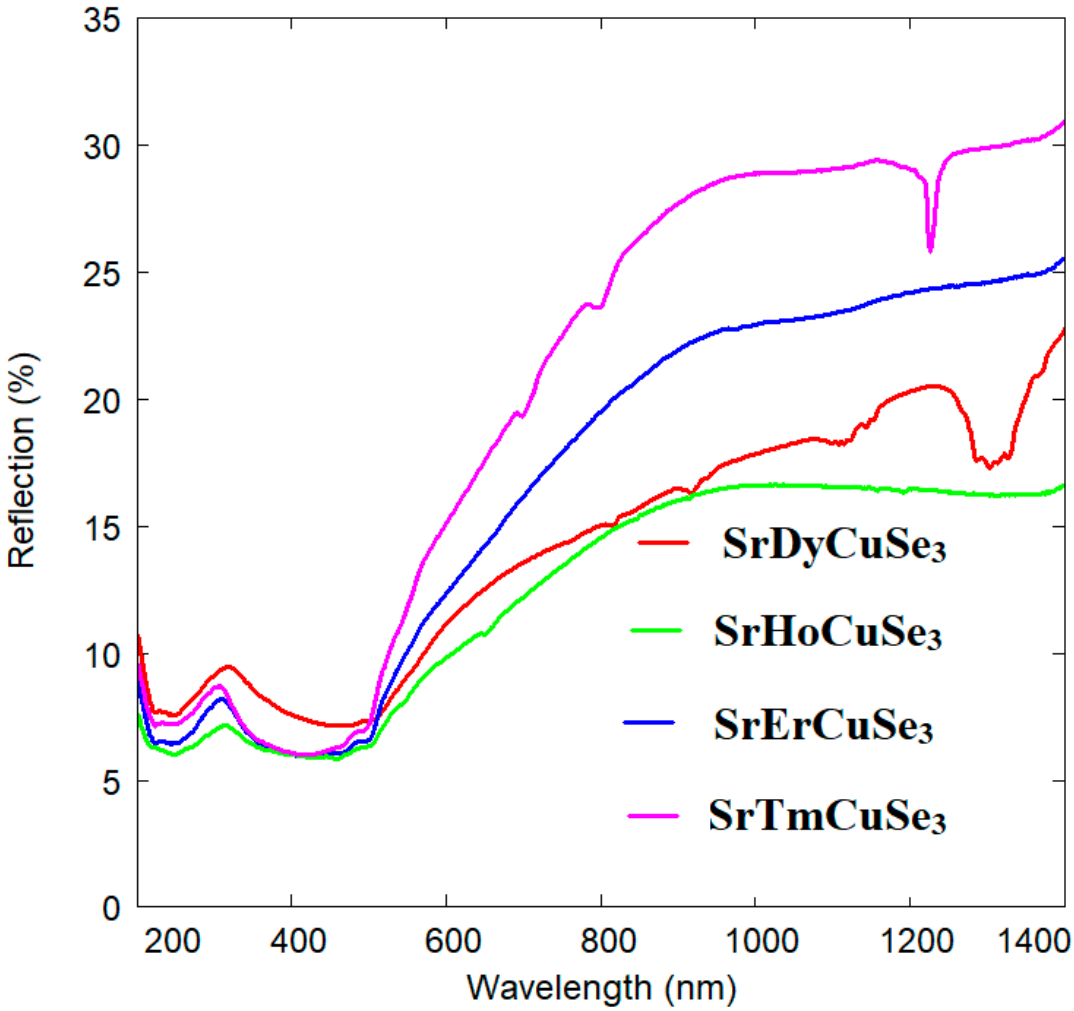

Figure S3. UV-vis-NIR diffuse reflectance spectra of quaternary rare earth selenides.

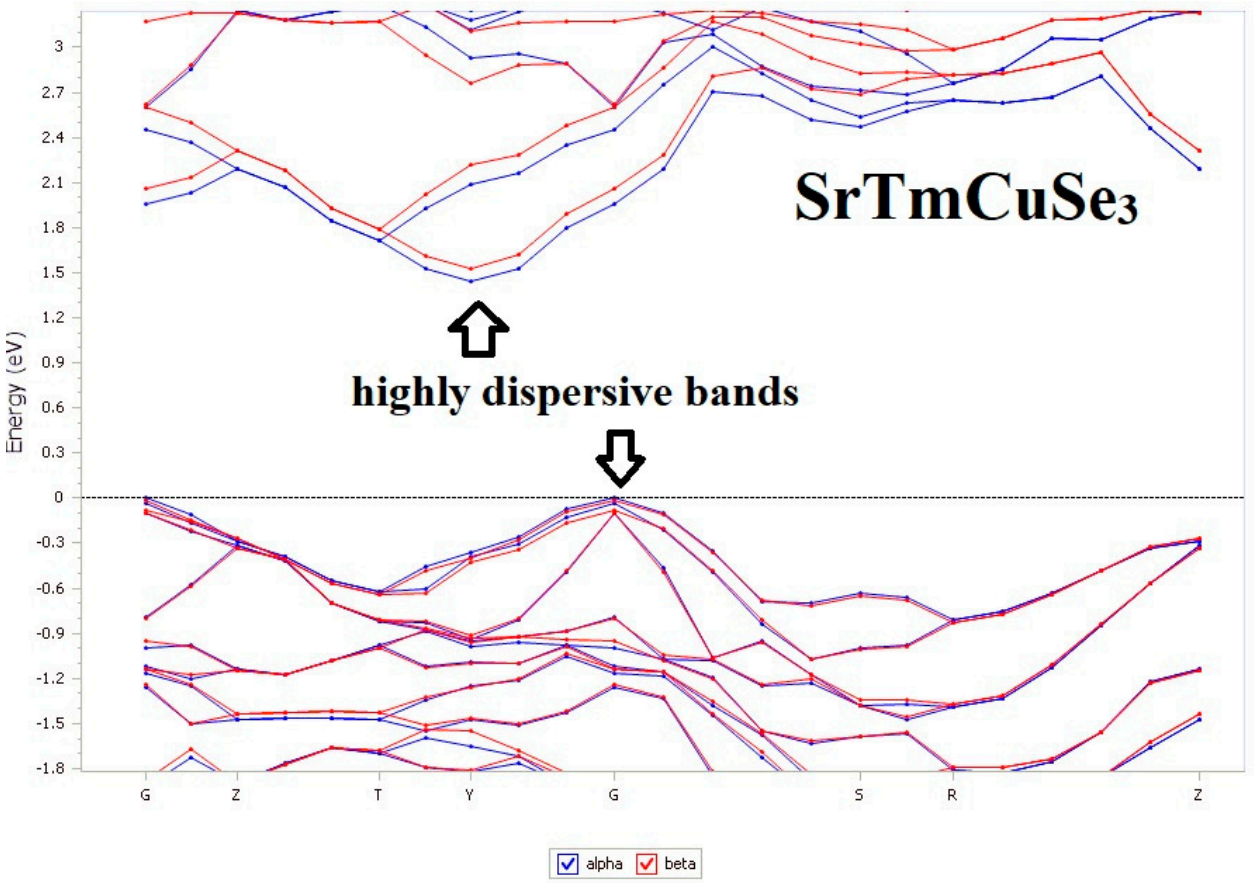

Figure S4. *Ab initio* DFT calculated band structure of $SrTmCuSe_3$ crystal. Indirect bandgap 1.35 eV.

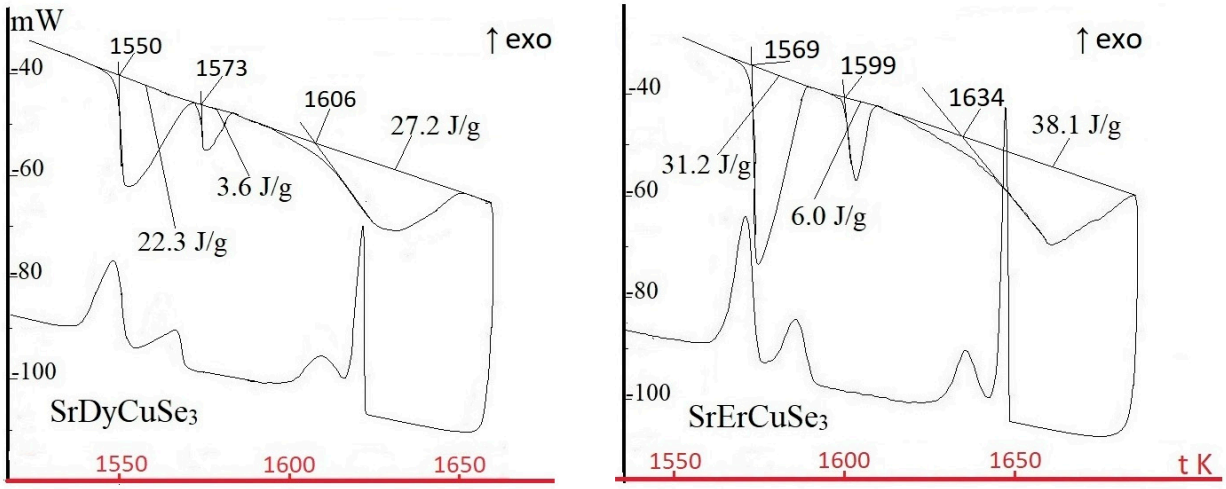

Figure S5. DSC/t dependences of "SETARAM" SETSYS Evolution for samples $SrDyCuSe_3$, $SrErCuSe_3$ (the samples were in sealed quartz ampoules).

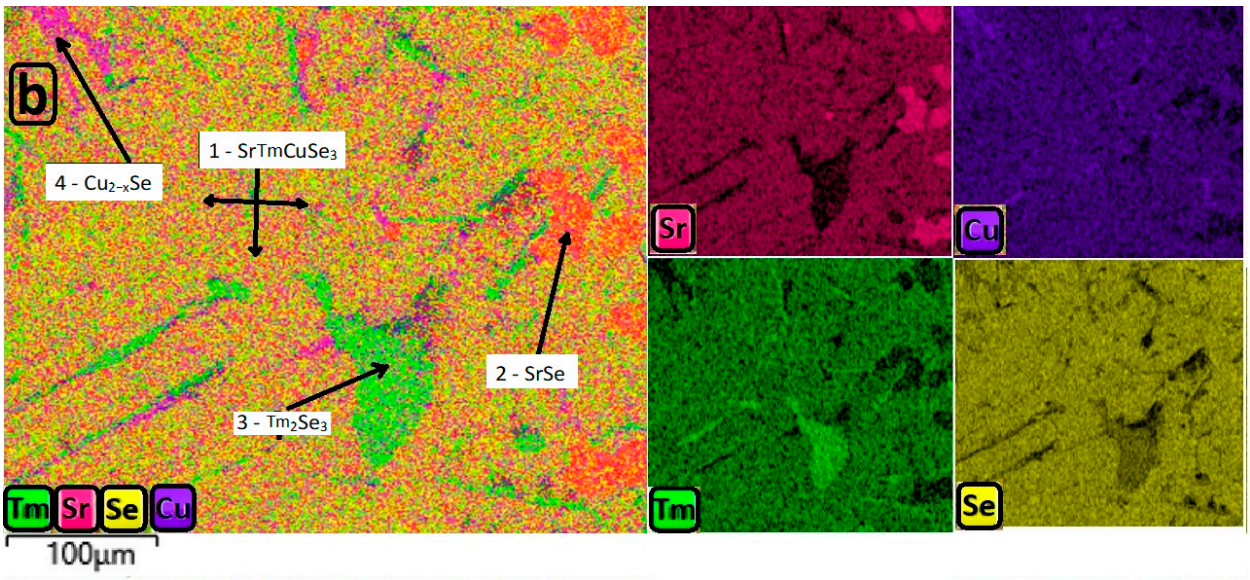

Figure S6. SEM/EDS maps of elemental distribution on the surface $SrTmCuSe_3$ sample that were cooled after the DSC measurements (1800 K)