Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.
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Supporting Information

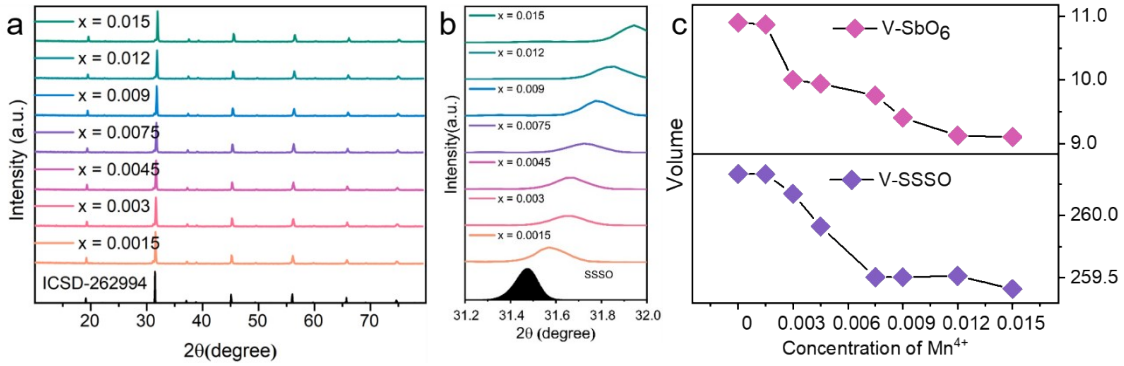

Figure S1. (a) XRD patterns of Sr_2ScSbO_6:$x$$Mn^{4+}$. (b) Magnified diffraction patterns of Sr_2ScSbO_6:$x$$Mn^{4+}$ in the region of 34.2°-34.6°. (c) With the increase of Mn^{4+} concentration, [SbO_6] and single cells volume change.

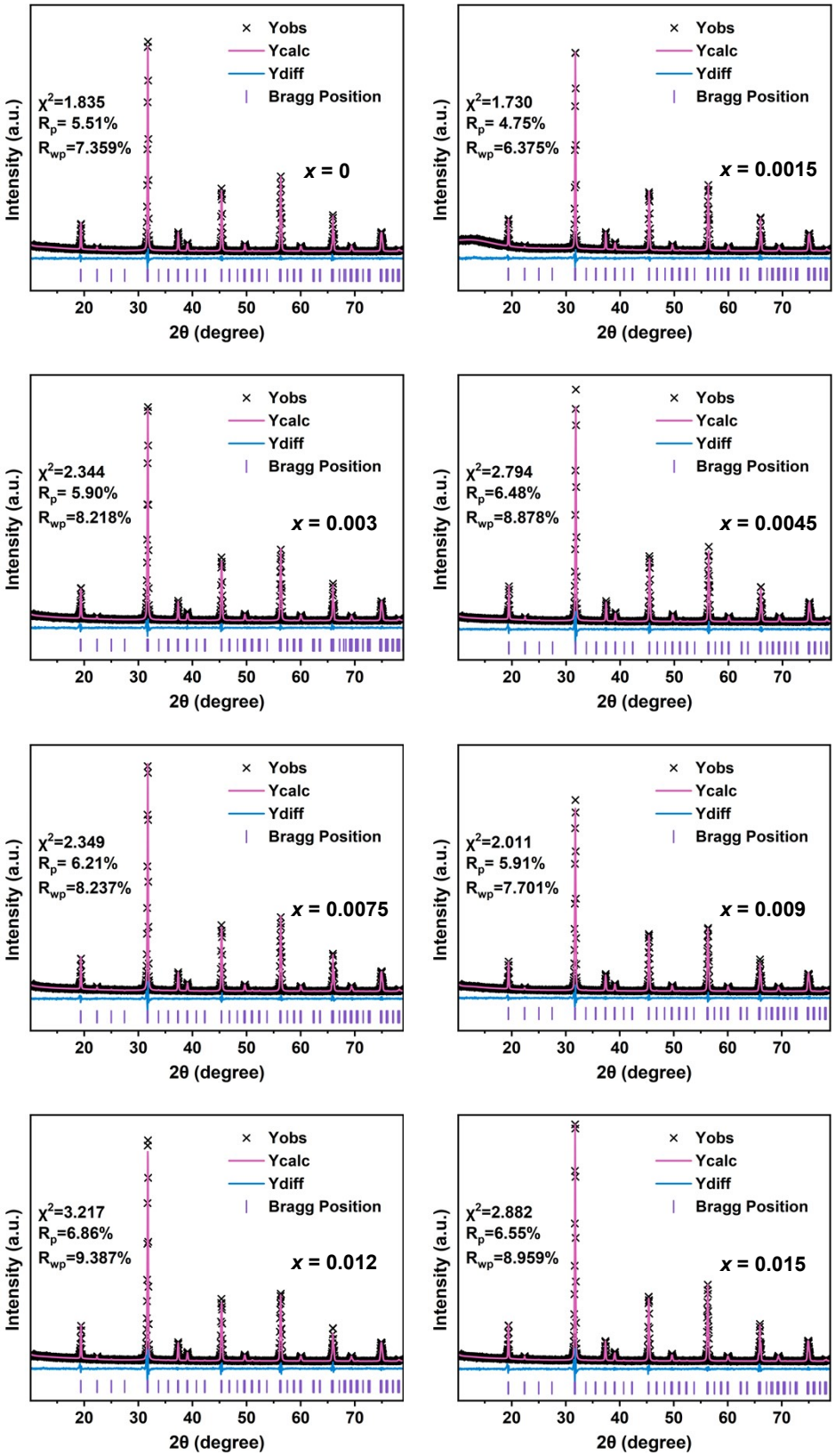

Figure S2. Rietveld refinement results of Sr_2ScSbO_6:$x$$Mn^{4+}$($x$=0-0.015).

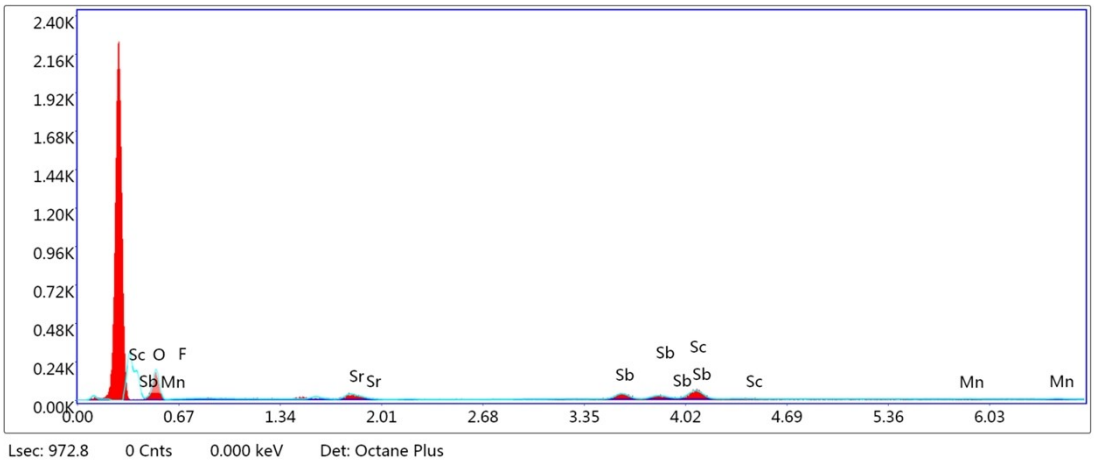

Figure S3. EDS spectrum of Sr_2ScSbO_6:0.003Mn^{4+} doped with 0.2SrF_2.

Table S1. Band gaps of Sr_2ScSbO_6:*x*Mn^{4+} (*x*=0-0.015).

Concentration (*x*)	**Energy（eV）**
***x*=0**	**3.7**
***x*=0.0015**	**3.64**
***x*=0.003**	**3.5**
***x*=0.0045**	**3.1**
***x*=0.0075**	**3.05**
***x*=0.009**	**3.07**
***x*=0.012**	**2.5**
***x*=0.015**	**2.3**

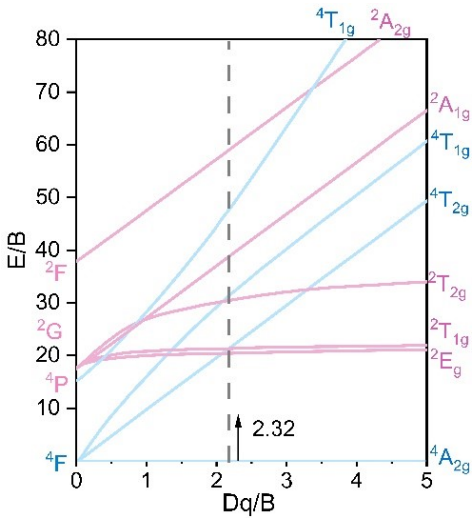

Figure S4. Tanabe−Sugano diagram for a Mn^{4+} ion in octahedral coordination.

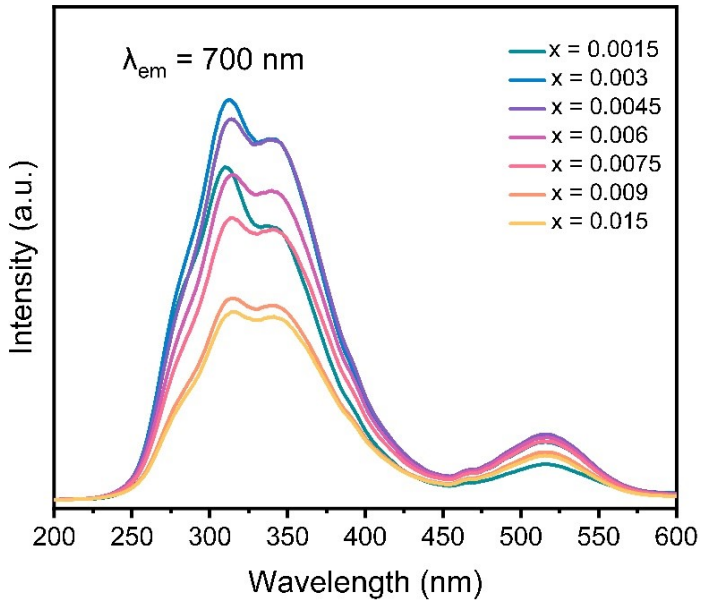

Figure S5. PLE spectra of Sr_2ScSbO_6:$x$$Mn^{4+}$($x$=0.0015-0.015).

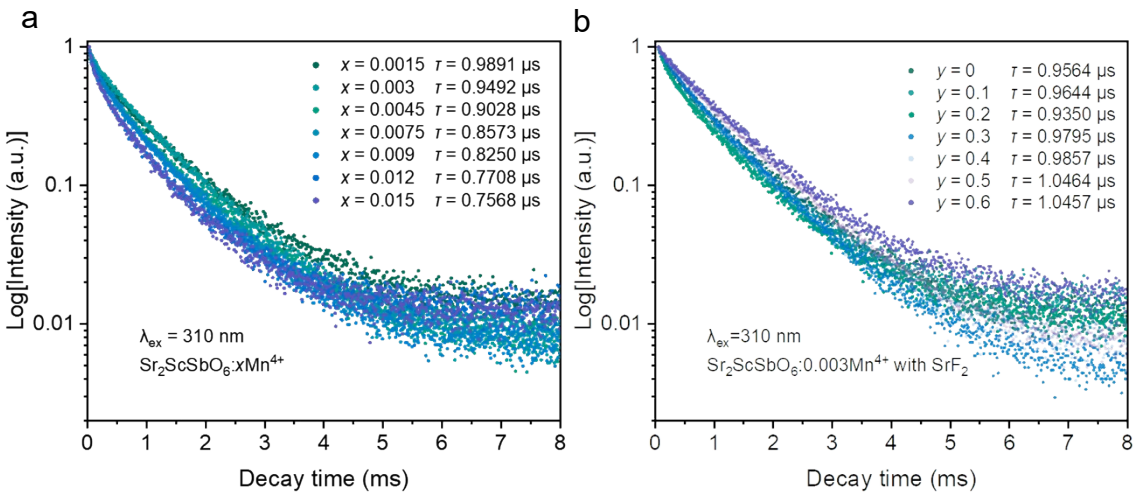

Figure S6. Decay curves of Sr_2ScSbO_6:xMn^{4+} and Sr_2ScSbO_6:0.003Mn^{4+} doped with $ySrF_2$ (λ_{ex}=310nm).

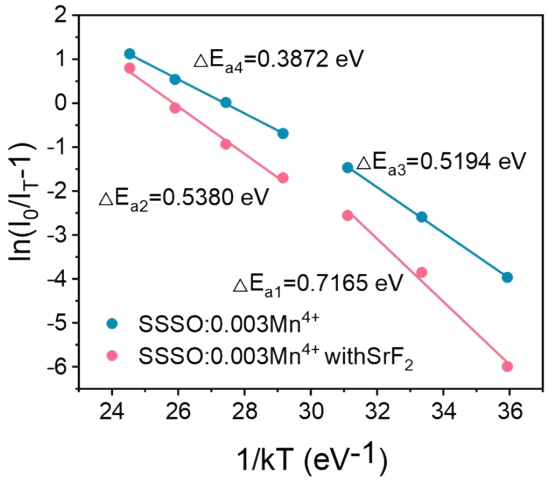

Figure S7. Plot of ln (I_0/I_T − 1) versus 1/kT of SSSO:0.003Mn^{4+} and SSSO:0.003Mn^{4+} doped with 0.2SrF_2.

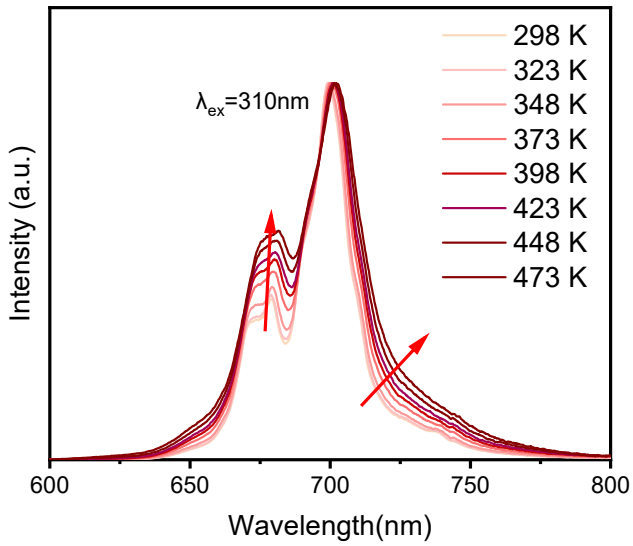

Figure S8. Temperature-dependent normalized emission spectra of SSSO:0.003Mn^{4+} doped with 0.2SrF_2.