Suppotting Information

Photochromic Apatite Skeletal Structure Materials: Recent Advances and Potential Applications

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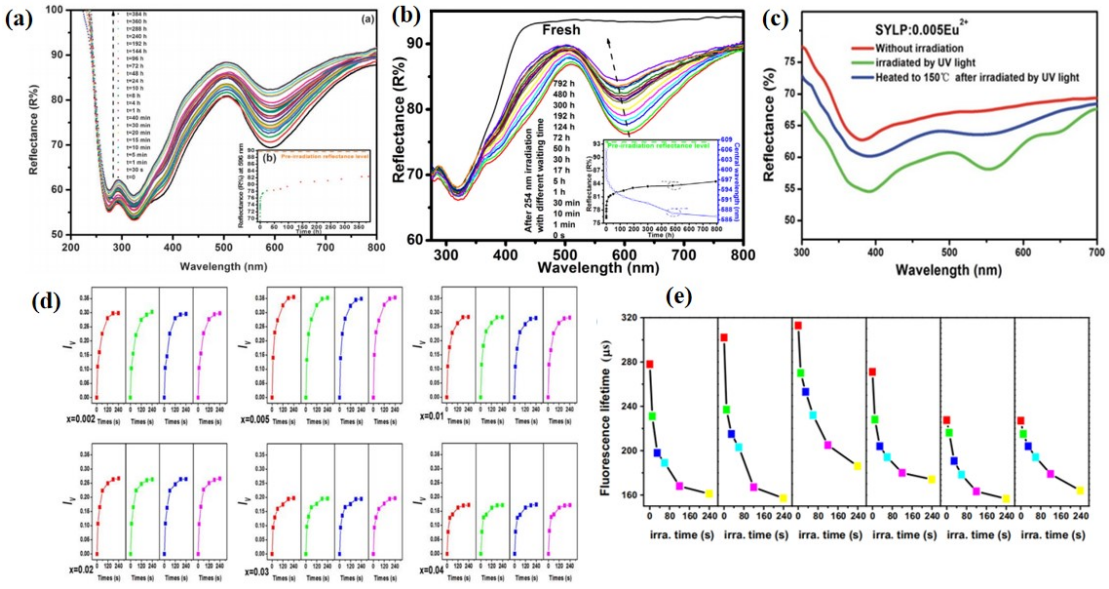

Fig. S1(a) DRS of $Sr_3YNa(PO_4)_3F$:0.5%Eu^{2+} at different delay times in the dark after irradiation at 230 nm for 5 min. (Reproduced from reference 16 with permission from Royal Society of Chemistry, copyright 2015). (b) DRS of $Sr_3GdNa(PO_4)_3F$:0.5%Eu^{2+} at different delay times in the dark after irradiation at 254 nm for 5 min. (Reproduced from reference 17 with permission from Elsevier, copyright 2017). (c) DRS of $Sr_3YLi(PO_4)_3F$:0.5%Eu^{2+} with and without UV light irradiation together with the coloring states heat treatment at 150 ℃. (Reproduced from reference 114 with permission from Elsevier, copyright 2017). (d) IV changes with different time of 240 nm light irradiation for several cycles. (Reproduced from reference 19 with permission from Elsevier, copyright 2019). (e) FL value of $Ca_2Ba_3(PO_4)_3F$:xEu^{2+} after 254 nm irradiation for different irradiation time. (Reproduced from reference 19 with permission from Elsevier, copyright 2019).

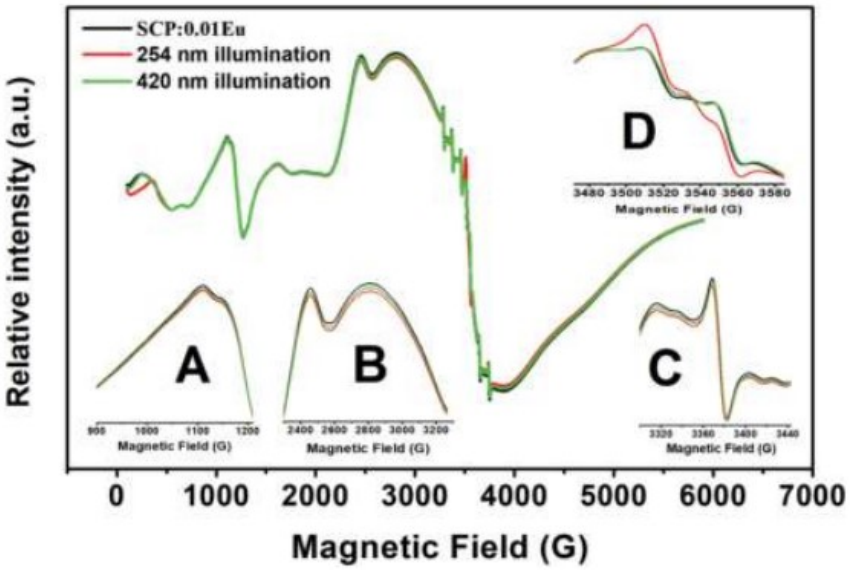

Fig. S2 The EPR spectra of sample $Sr_6Ca_4(PO_4)_6F_2$:1%Eu^{2+} before and after 254 nm light irradiation and then irradiated by 420 nm light. (Reproduced from reference 20 with permission from Royal Society of Chemistry, copyright 2020).

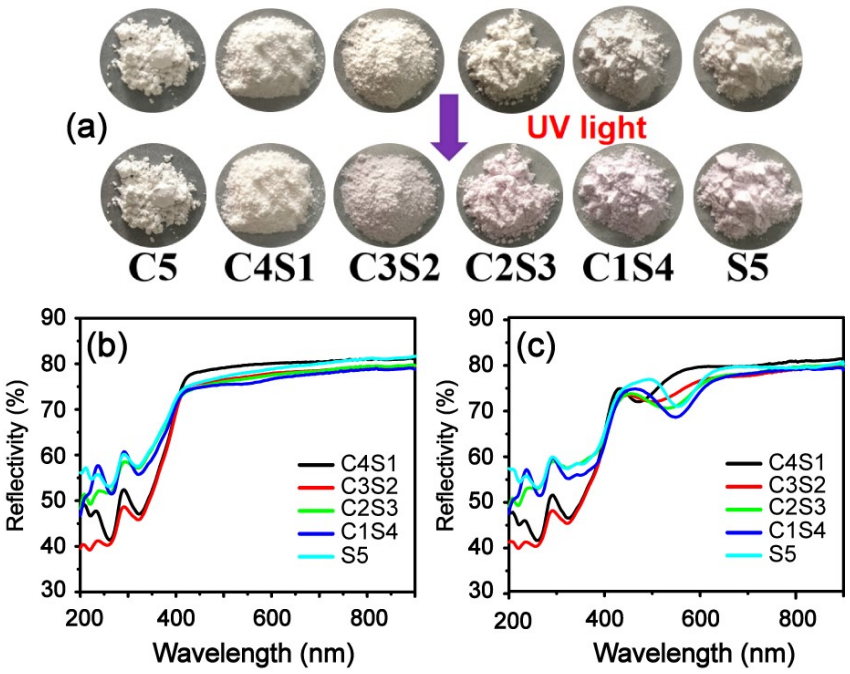

Fig. S3 (a) Photographs of $(Ca,Sr)_5(PO_4)_3F:Eu^{2+}$ solid solutions before and after UV light irradiation. UV-Vis DRS of $(Ca,Sr)_5(PO_4)_3F:Eu^{2+}$ solid solutions before (b) and after (c) UV light irradiation. (Reproduced from reference 74 with permission from Royal Society of Chemistry, copyright 2021).

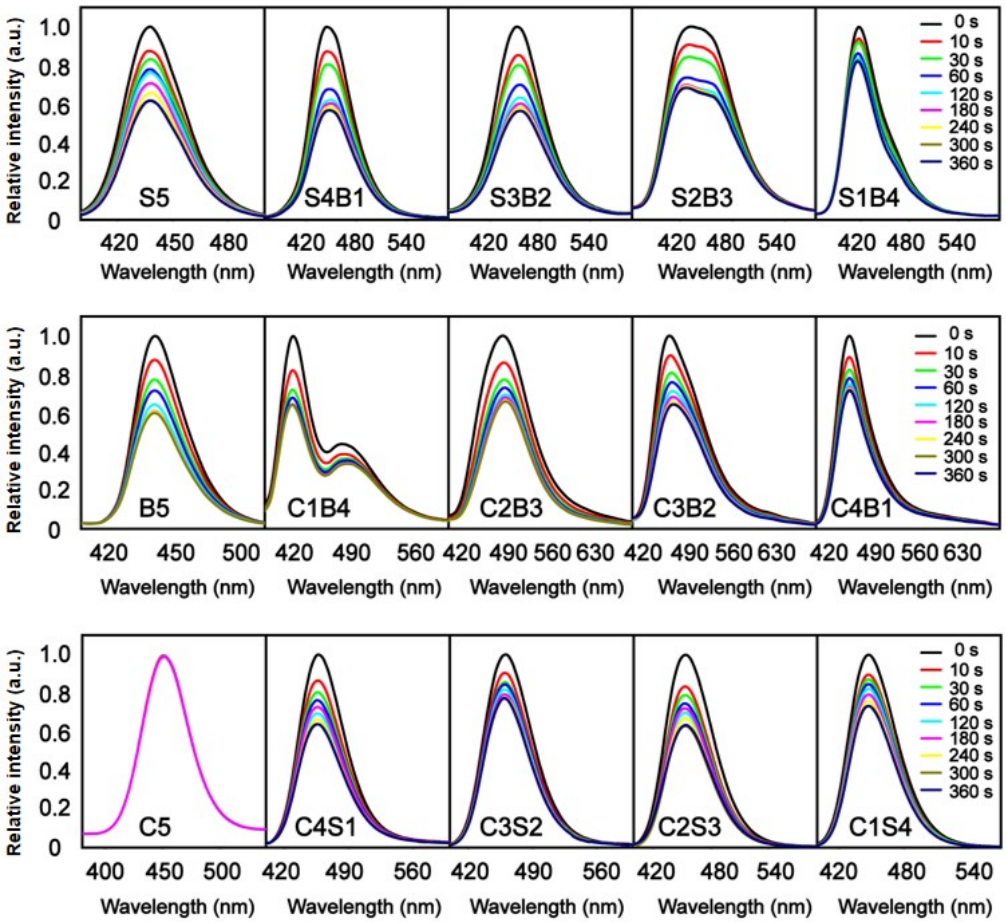

Fig. S4 PL modulation spectra of $(Ca,Sr,Ba)_5(PO_4)_3F:Eu^{2+}$ upon irradiation for different times. (Reproduced from reference 74 with permission from Royal Society of Chemistry, copyright 2021).

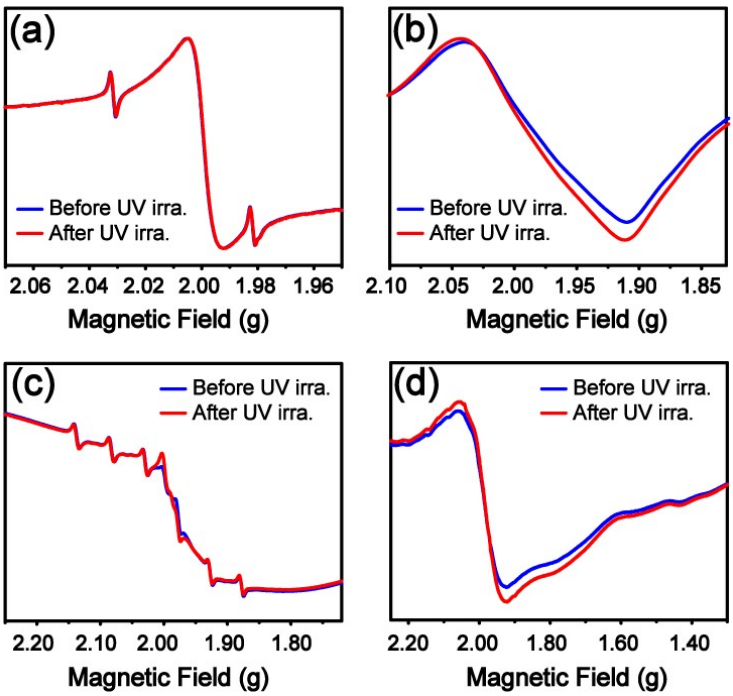

Fig. S5 EPR spectra before and after UV light irradiation of (a)$Ca_5(PO_4)_3F:Eu^{2+}$, (b)$Sr_5(PO_4)_3F:Eu^{2+}$, (c)$Sr_3Ca_2(PO_4)_3F:Eu^{2+}$, (d)$Ca_4Ba(PO_4)_3F:Eu^{2+}$. (Reproduced from reference 74 with permission from Royal Society of Chemistry, copyright 2021).