Electronic Supplementary Material (ESI) for Dalton Transactions.

Supplementary Materials

Laser induced white emission generation from $La_{1-x}Nd_xAlO_3$ nanocrystals

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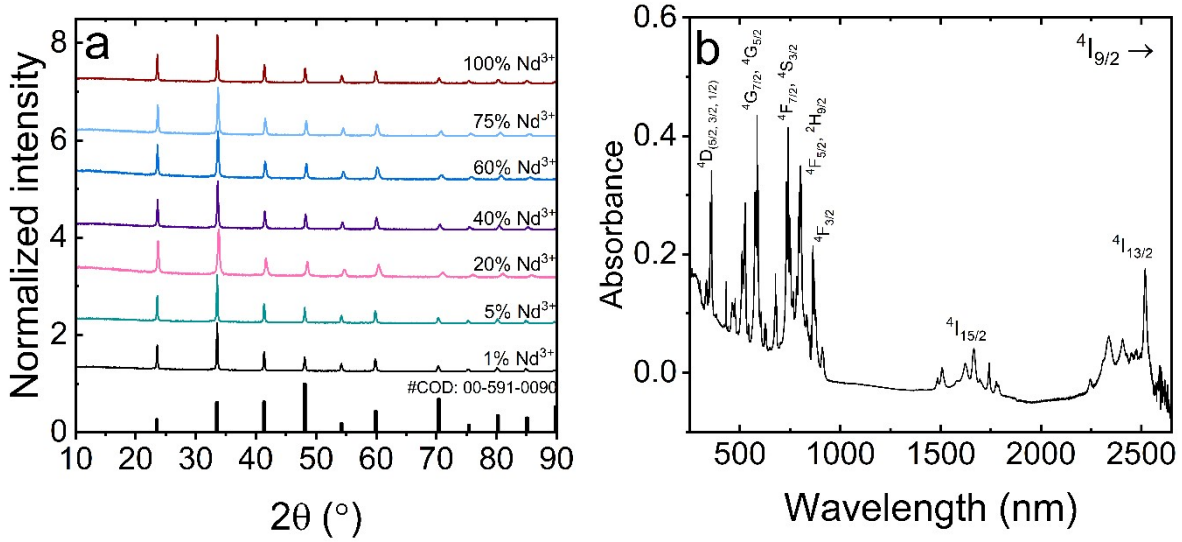

Fig. S1. Powder XRD of $La_{1-x}AlO_3$:xNd^{3+} perovskites (a) and diffuse reflectance spectra of $NdAlO_3$ (b).

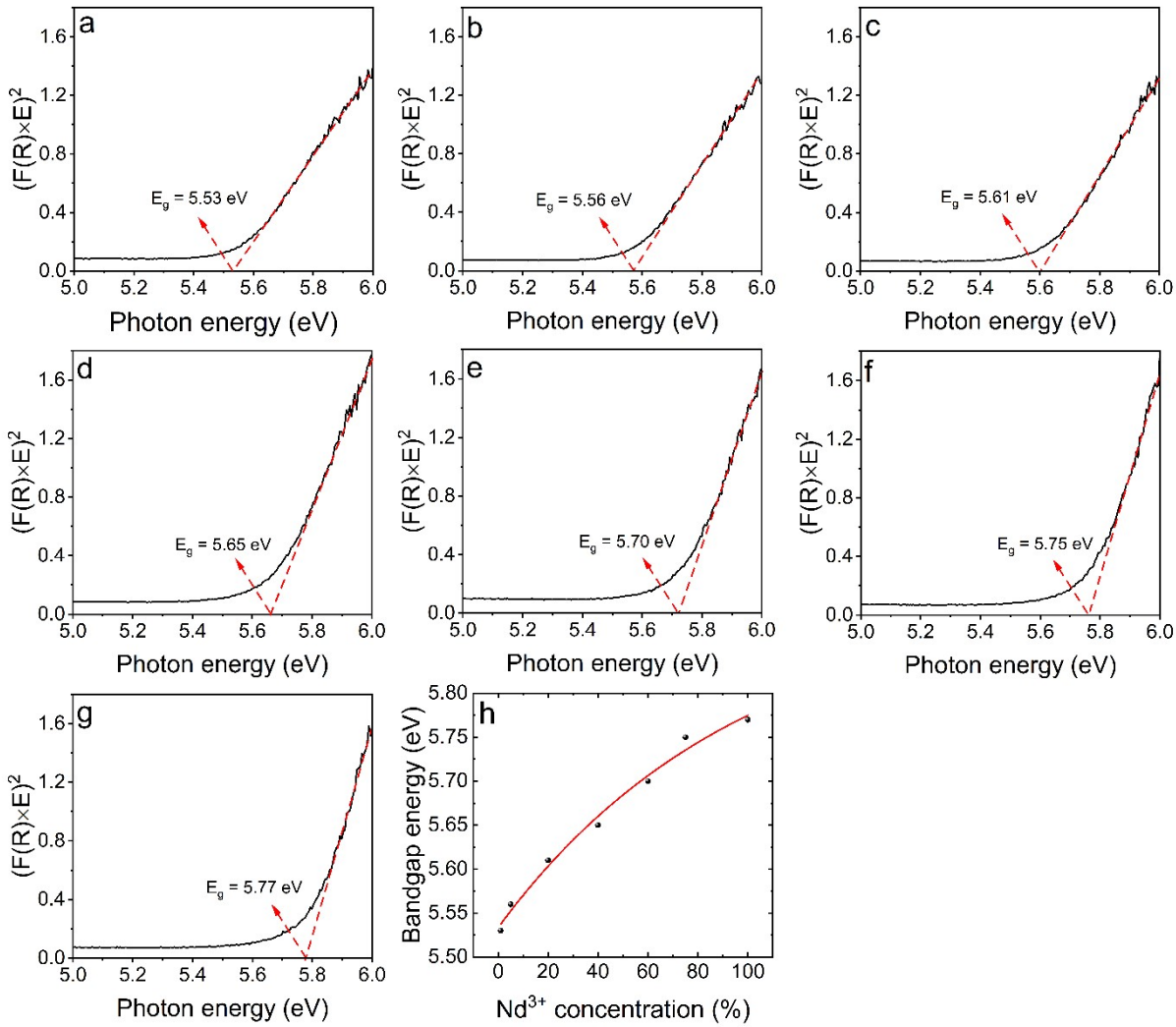

Fig. S2. Tauc plots for bandgap energy calculations of (a) $LaAlO_3$:1%Nd^{3+}, (b) $LaAlO_3$:5%Nd^{3+}, (c) $LaAlO_3$:20%Nd^{3+}, (d) $LaAlO_3$:40%Nd^{3+}, (e) $LaAlO_3$:60%Nd^{3+}, (f) $LaAlO_3$:75%Nd^{3+}, (g) $NdAlO_3$ and (h) the correlation of the bandgap energy with Nd^{3+} concentration.

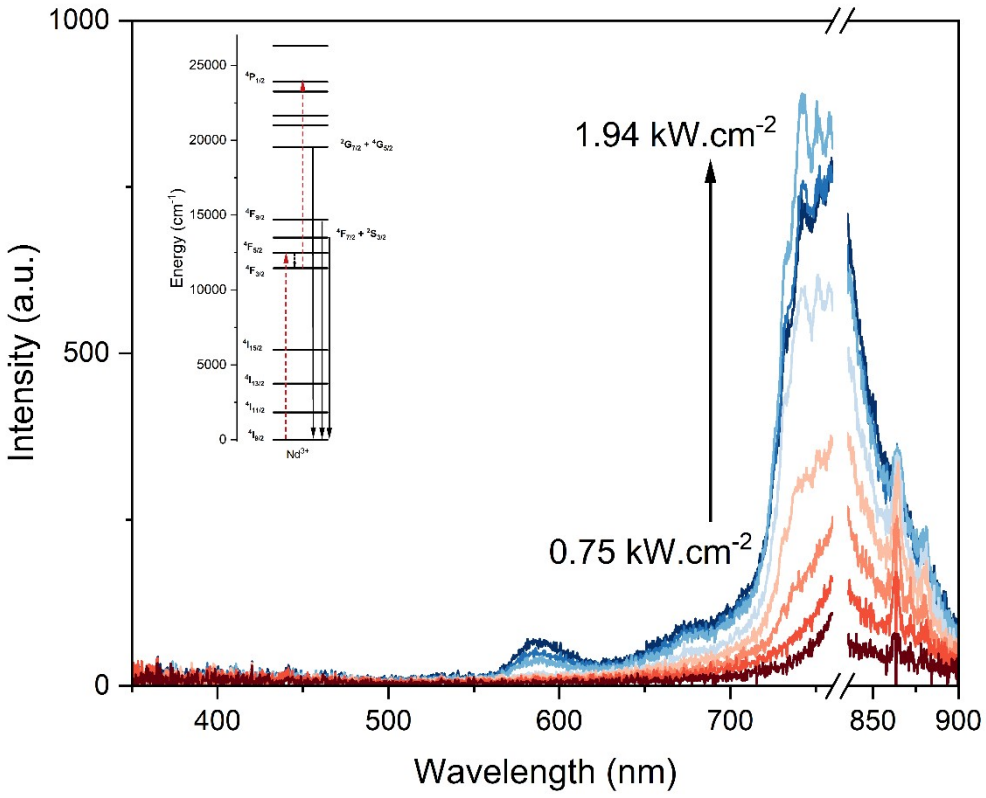

Fig. S3. Emission spectra of $LaAlO_3$:1%Nd^{3+} at low power excitation showing 2 photon upconversion. Inset: Simplified energy level diagram containing relevant energy levels.

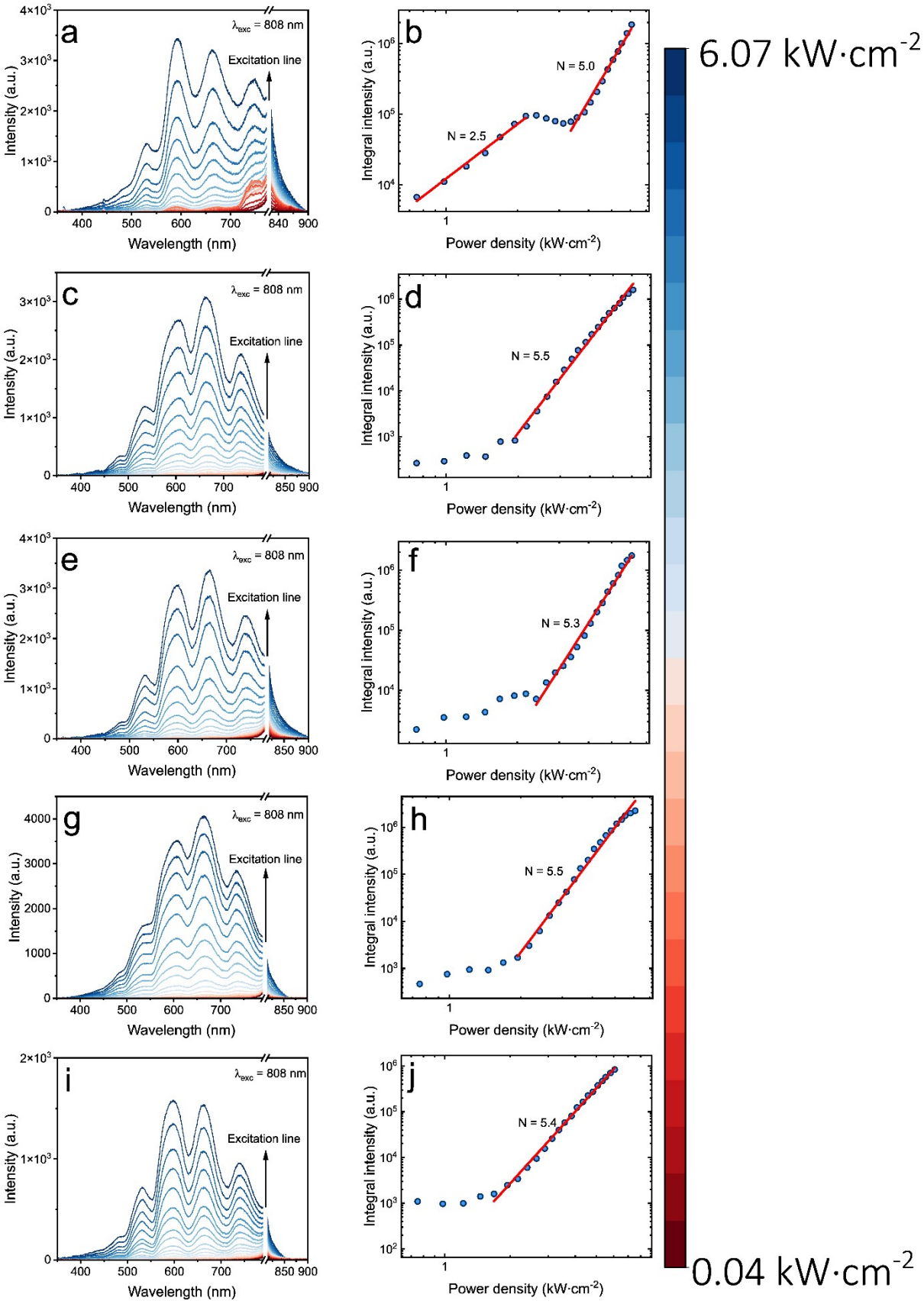

Fig. S4. Power dependence of $LaAlO_3:5Nd^{3+}$ (a-b), $LaAlO_3:20Nd^{3+}$ (c-d), $LaAlO_3:40Nd^{3+}$ (e-f), $LaAlO_3:60Nd^{3+}$ (g-h) and $LaAlO_3:75Nd^{3+}$ (i-j).

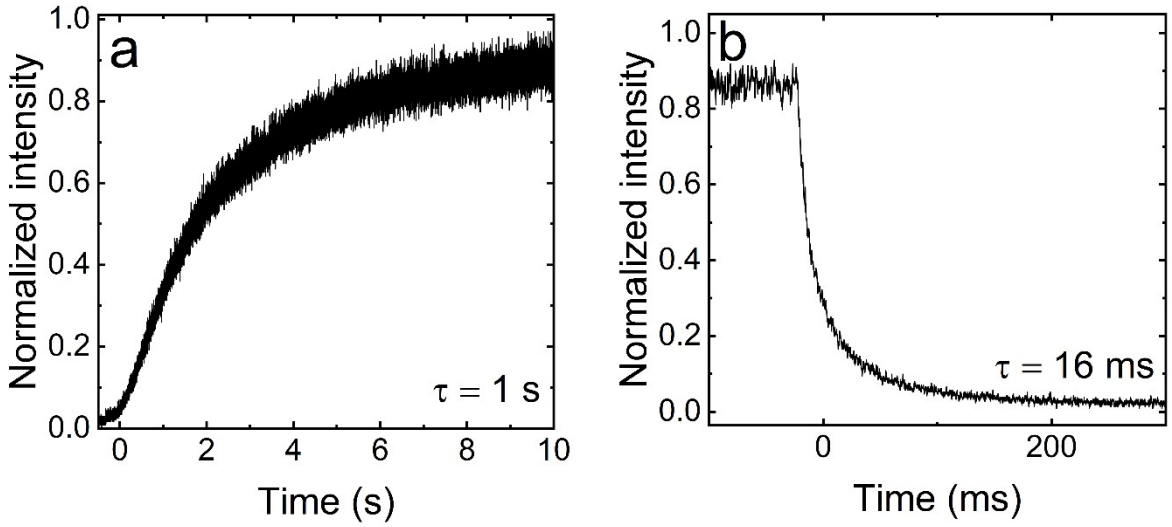

Fig. S5. Rise (a) and decay (b) times for $NdAlO_3$.

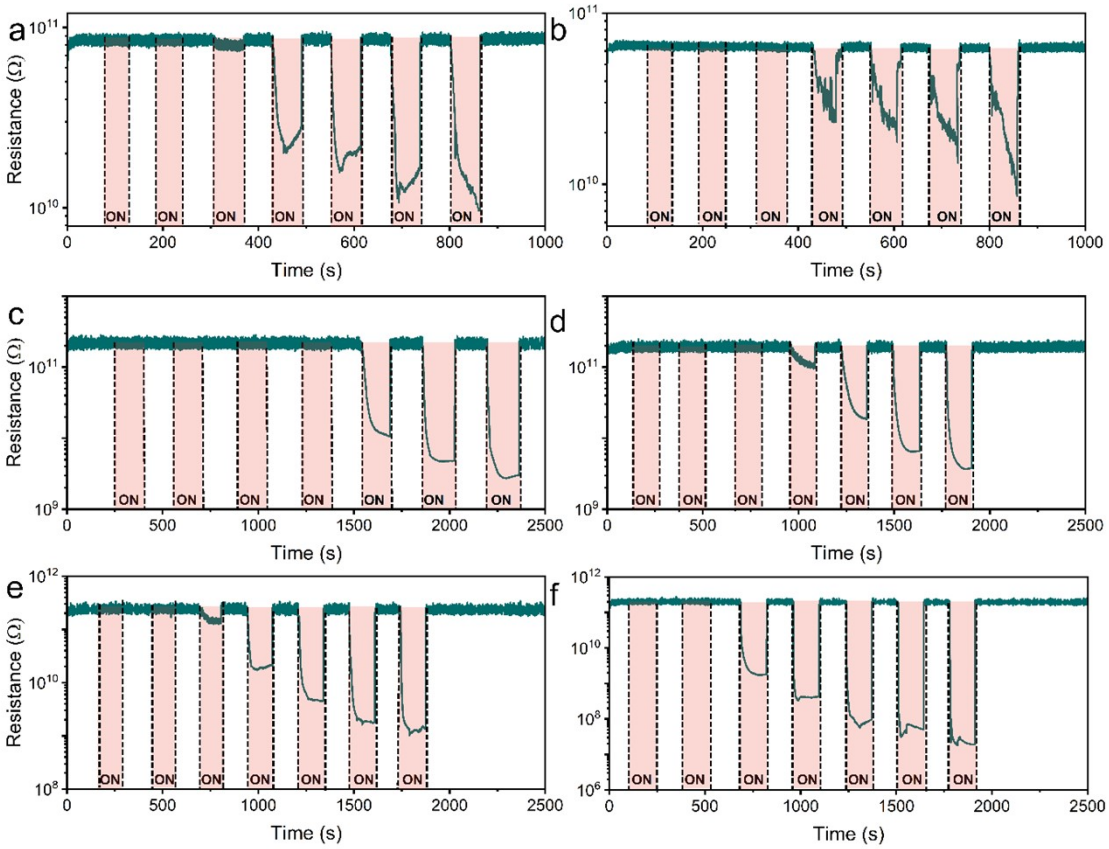

Fig. S6. Photoresistance of $LaAlO_3$:1%Nd^{3+} (a), $LaAlO_3$:5%Nd^{3+} (b), $LaAlO_3$:20%Nd^{3+} (c), $LaAlO_3$:40%Nd^{3+} (d), $LaAlO_3$:60%Nd^{3+} (e) and $LaAlO_3$:75%Nd^{3+} (f) with 1 minute on/off cycles.

Table S1. Correlated color temperature (CCT) of the emission for $La_{1-x}Nd_xAlO_3$

Nd^{3+} content	CCT (K)
0	2120
1	2111
5	2355
20	2307
40	2261
60	2366
75	2441
100	2354