

# GSAG:Ce Scintillator: Insights from Yttrium Admixture

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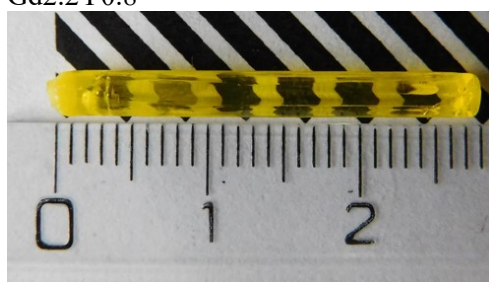
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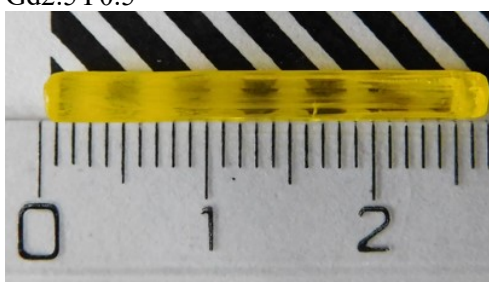
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## Supplementary information

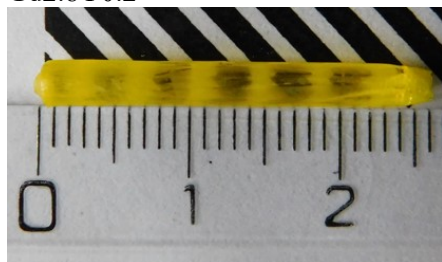
Gd<sub>2.2</sub>Y<sub>0.8</sub>



Gd<sub>2.5</sub>Y<sub>0.5</sub>



Gd<sub>2.8</sub>Y<sub>0.2</sub>



Gd<sub>3</sub>Y<sub>0</sub>

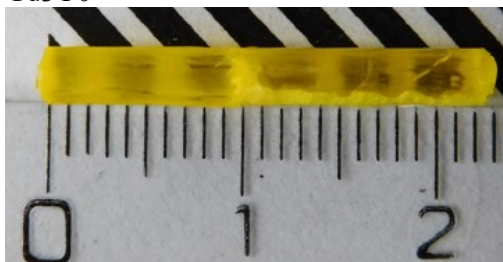


Figure S1: Photographs of GYSAG:Ce set grown by the  $\mu$ -PD crystal grown method.

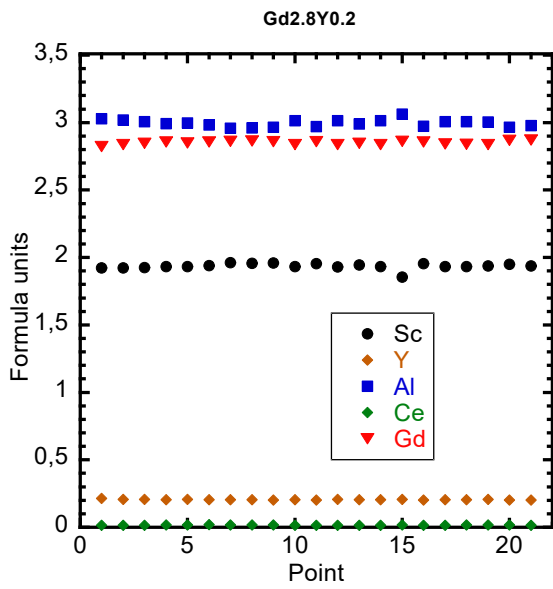
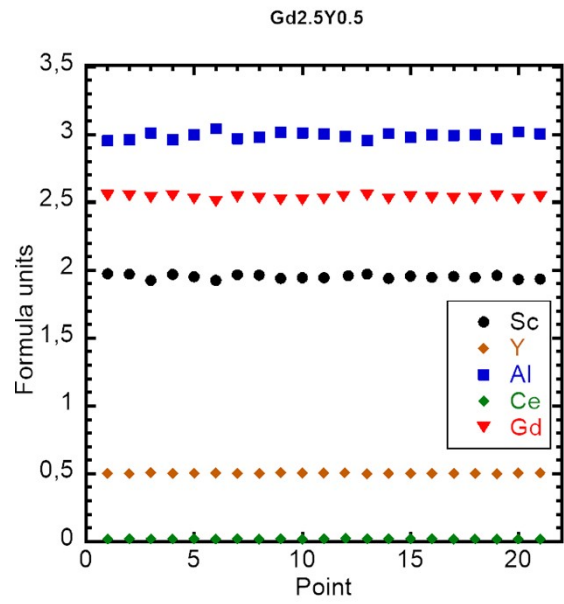
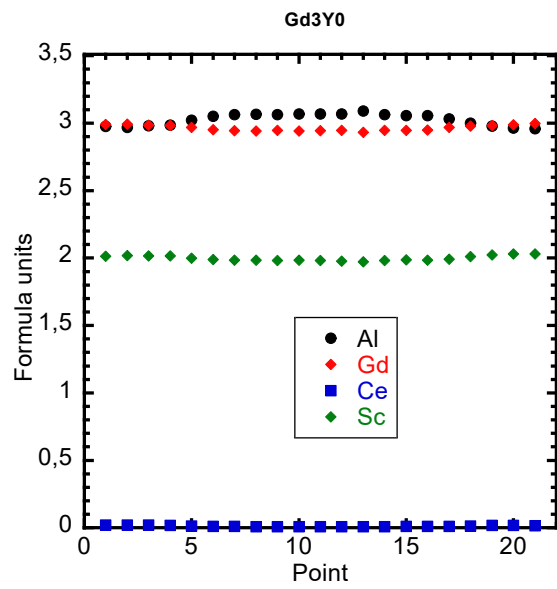


Figure S2: EPMA analysis of Gd2.5Y0.5, Gd2.8Y0.2 and Gd3Y0.

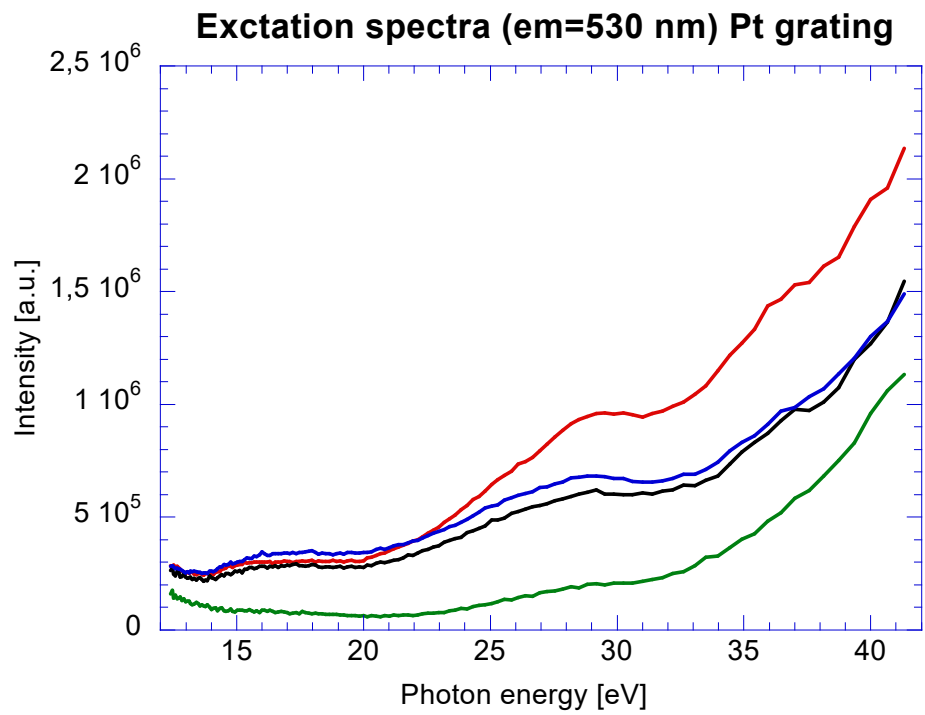
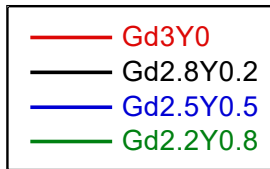


Figure S3: PLE (em= 530 nm) spectra for GYSAG series over 12.4 eV nm using Pt grating.

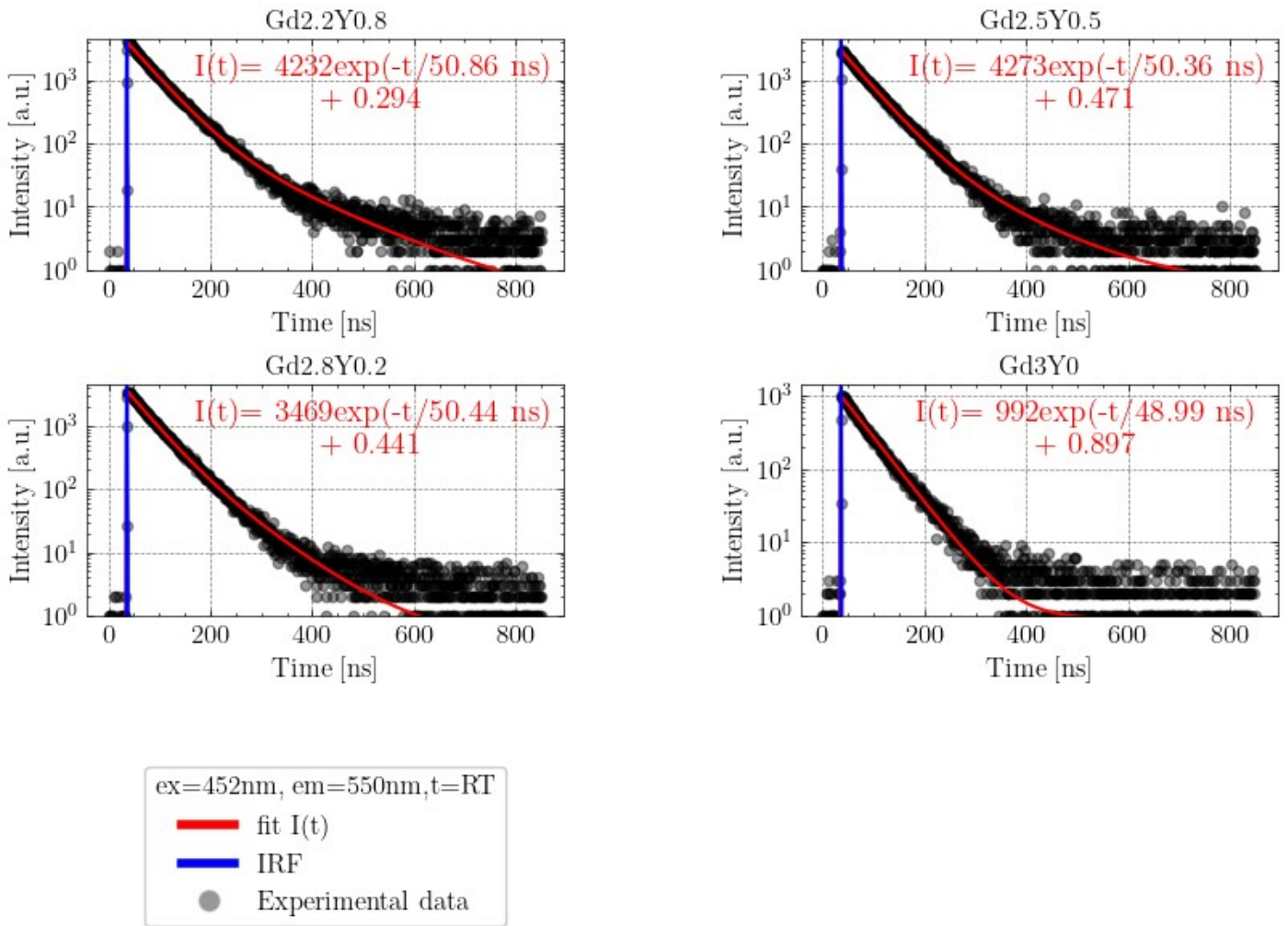


Figure S4: PL decay curves of GYSAG:Ce set under nanoLED-pulse excitation at RT ( $exc=452\text{ nm}$ ,  $em=550\text{ nm}$ ). The fit (red line) is a convolution of the instrumental response and function  $I(t)$  in the figure.

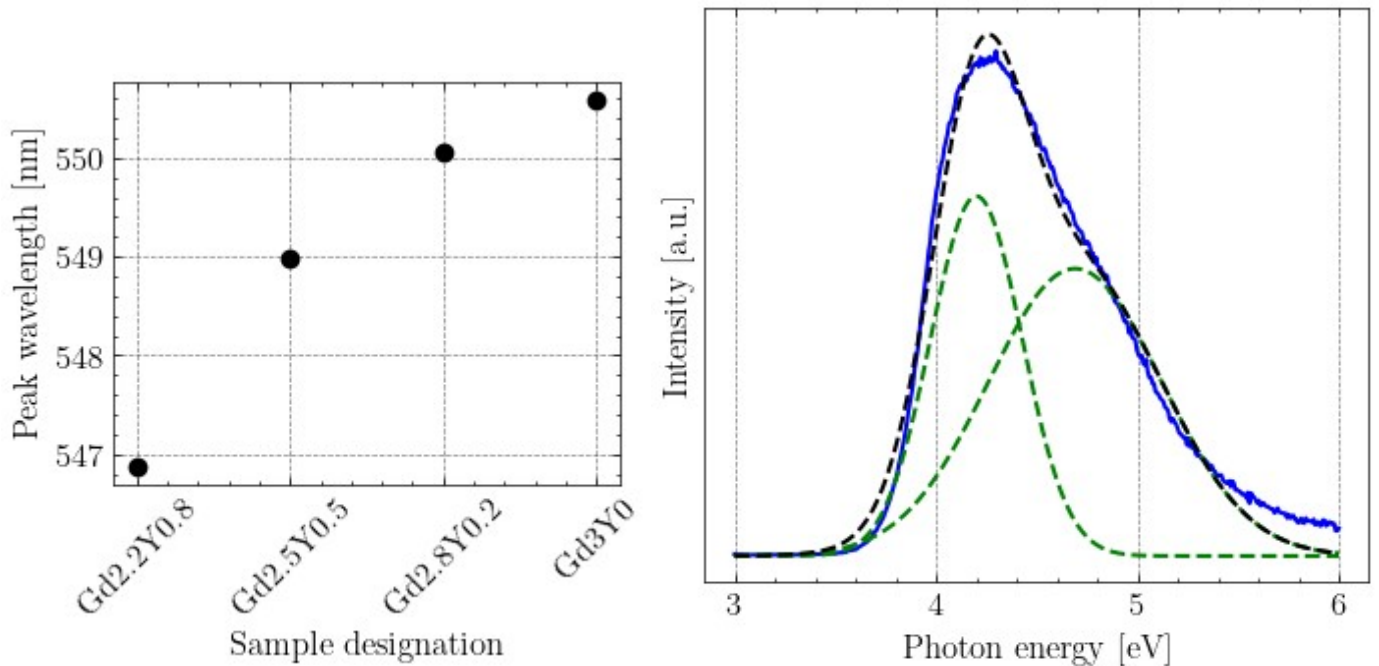


Figure S5: a) Peak position from RL of  $5d_1-4f_{1,2}$  transition of  $Ce^{3+}$ . b) Example of fit of doublet peak with two Gaussian functions (green), sum (black), and (blue) raw data for Gd3Y0.