## **Supplementary Information**

## NIR laser irradiation of Er<sub>0.5</sub>Yb<sub>2.5</sub>Al<sub>5</sub>O<sub>12</sub> single crystal:

## Photoluminescence from ultraviolet to NIR-II

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**Figure S1.** Element distribution from different regions of the  $Er_{0.5}Yb_{2.5}Al_5O_{12}$  single crystal determined by energy-dispersion X-ray spectrometry.