

Supporting Information for

## Excited State Dynamics of the Photoconvertible Fluorescent Protein Kaede Revealed by Ultrafast Spectroscopy

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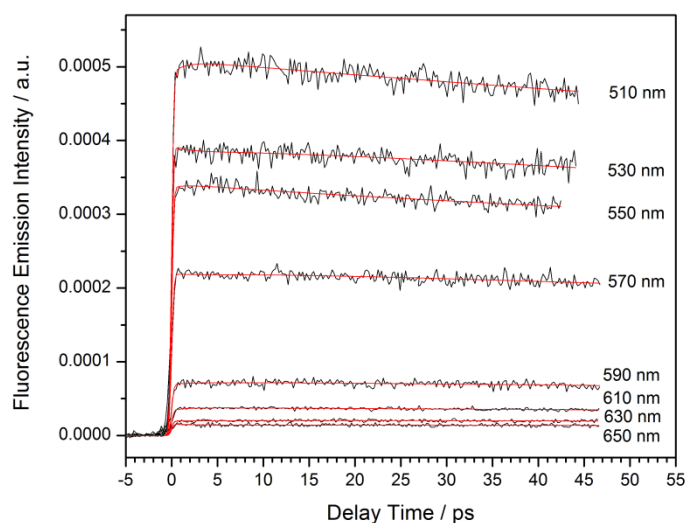
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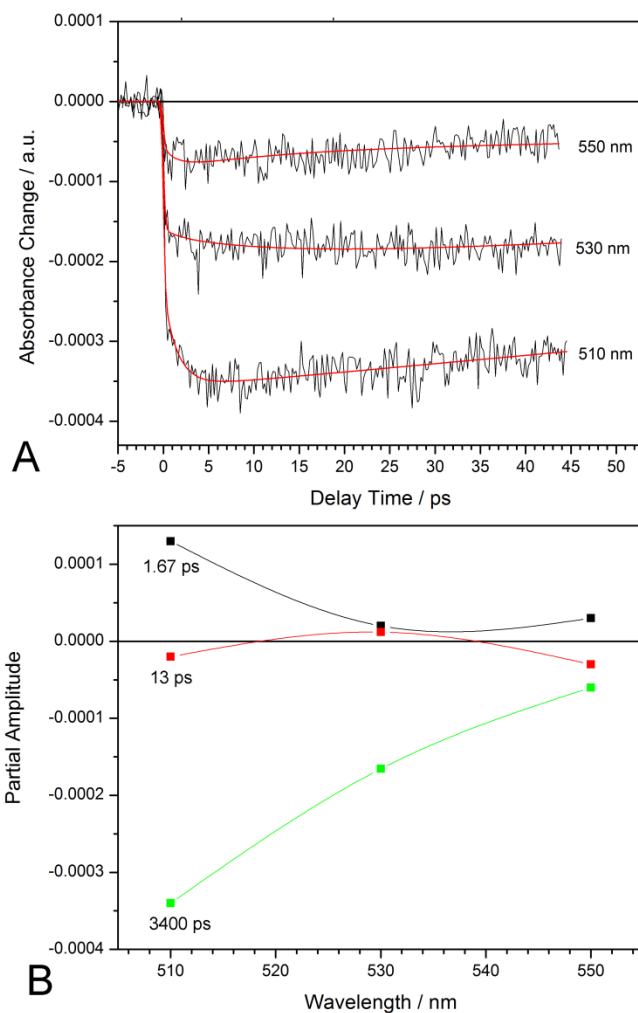
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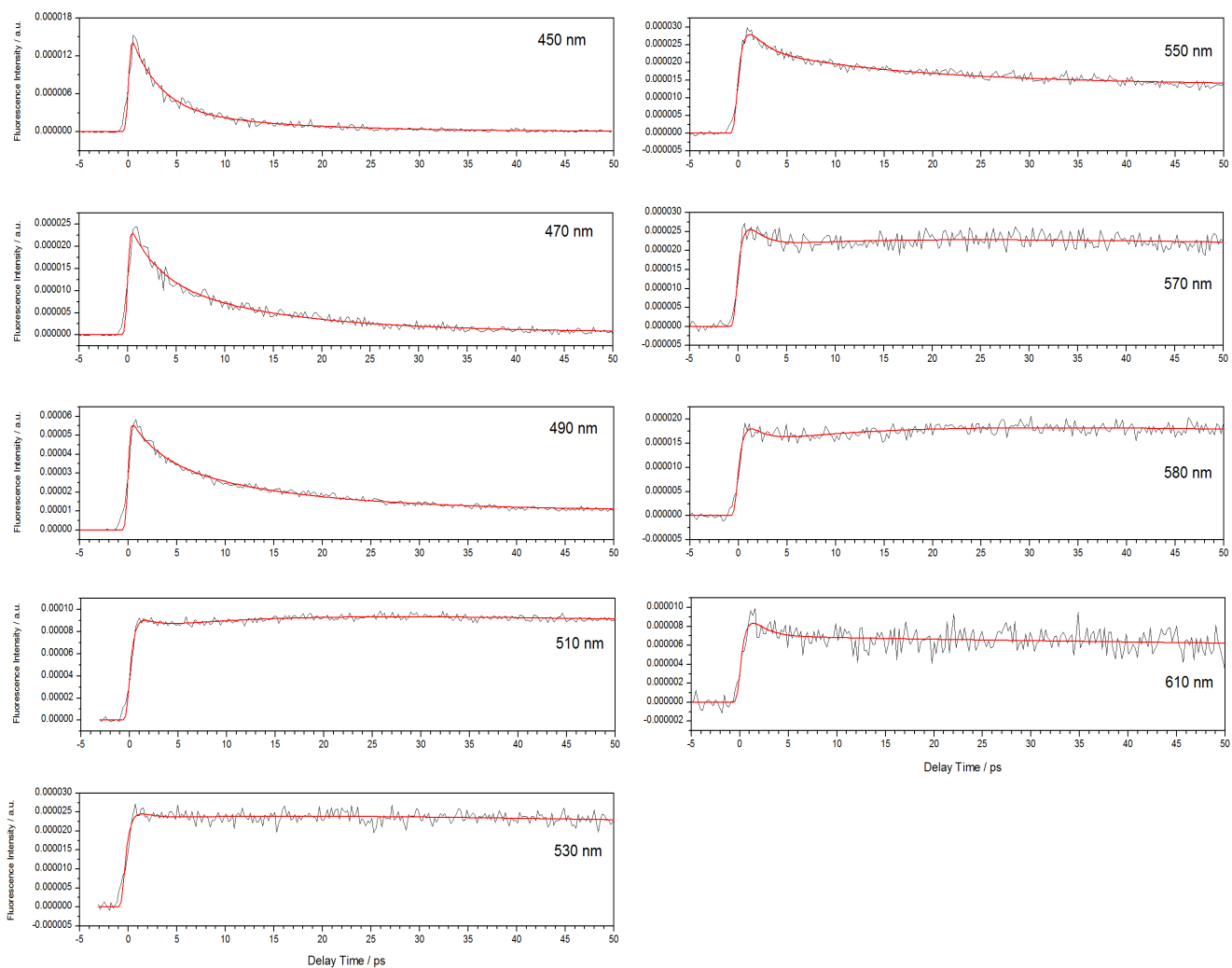
### Results



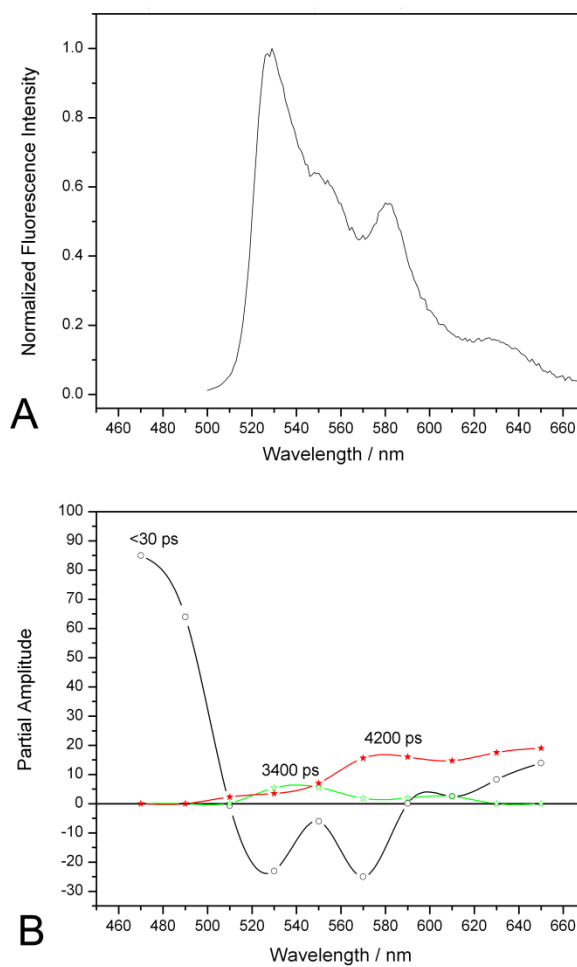
**Figure S1.** Decay traces and the corresponding fits obtained for green **Kaede**, pH 7.4 by femtosecond fluorescence up-conversion technique in a 50-ps time window, ( $\lambda_{\text{exc}}=495$  nm,  $\lambda_{\text{det}}=510\text{-}650$  nm);



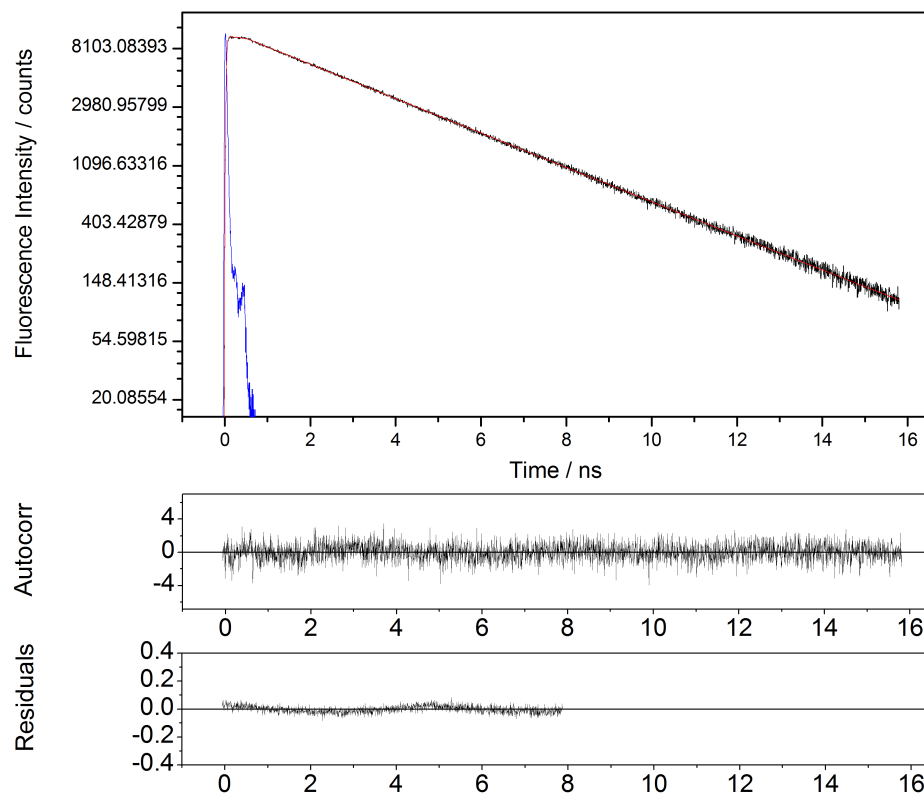
**Figure S2.** **A:** Decay traces and the corresponding fits obtained by femtosecond transient absorption technique in a 50-ps time window, ( $\lambda_{\text{exc}}=495$  nm,  $\lambda_{\text{det}}=510\text{-}550$  nm, pH 7.4); **B:** Amplitude-to-wavelength dependence of the decay times.



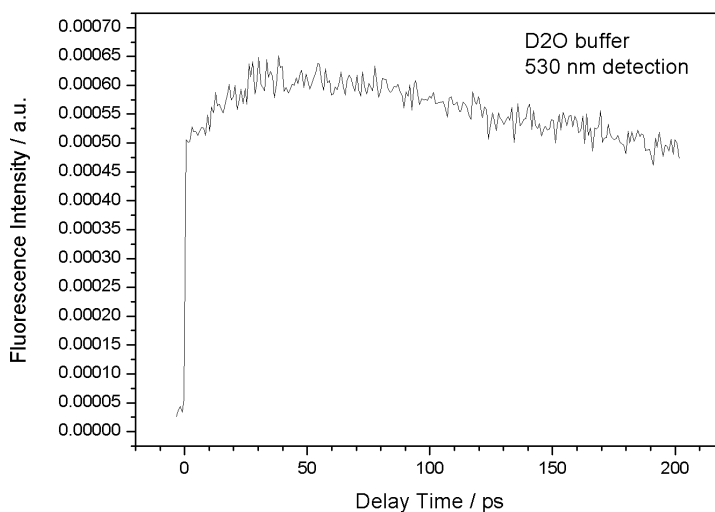
**Figure S3.** Decay traces and the corresponding fits obtained for partially red photoconverted **Kaede**, pH 7.4 by femtosecond fluorescence up-conversion technique in a 50-ps time window, ( $\lambda_{\text{exc}}=395$  nm,  $\lambda_{\text{det}}=450\text{-}610$  nm)



**Figure S4.** A: Normalized fluorescence emission spectrum ( $\lambda_{\text{exc}}=488\text{ nm}$ ) of the partially photoconverted **Kaede**, pH 7.4 occurred during SPT experiments B: Amplitude-to-wavelength dependence of the decay times obtained for partially photoconverted **Kaede** by SPT technique, ( $\lambda_{\text{exc}}=375\text{ nm}$ ,  $\lambda_{\text{det}}=490\text{-}650\text{ nm}$ );



**Figure S5.** Fluorescence emission decay ( $\lambda_{\text{exc}}=488$  nm, black), IRF (blue), corresponding fit (red), autocorrelation and residuals plots of the green **Kaede**, pH 7.4 recorded in SPT experiments;  $\chi^2=1.02$ .



**Figure S6.** Decay trace of green **Kaede** (pH 7.4) in D<sub>2</sub>O buffer obtained by femtosecond up-conversion technique in 200 ps time window,  $\lambda_{\text{exc}}=395$  nm,  $\lambda_{\text{det}}=530$  nm.