

# Electronic Supplementary Information

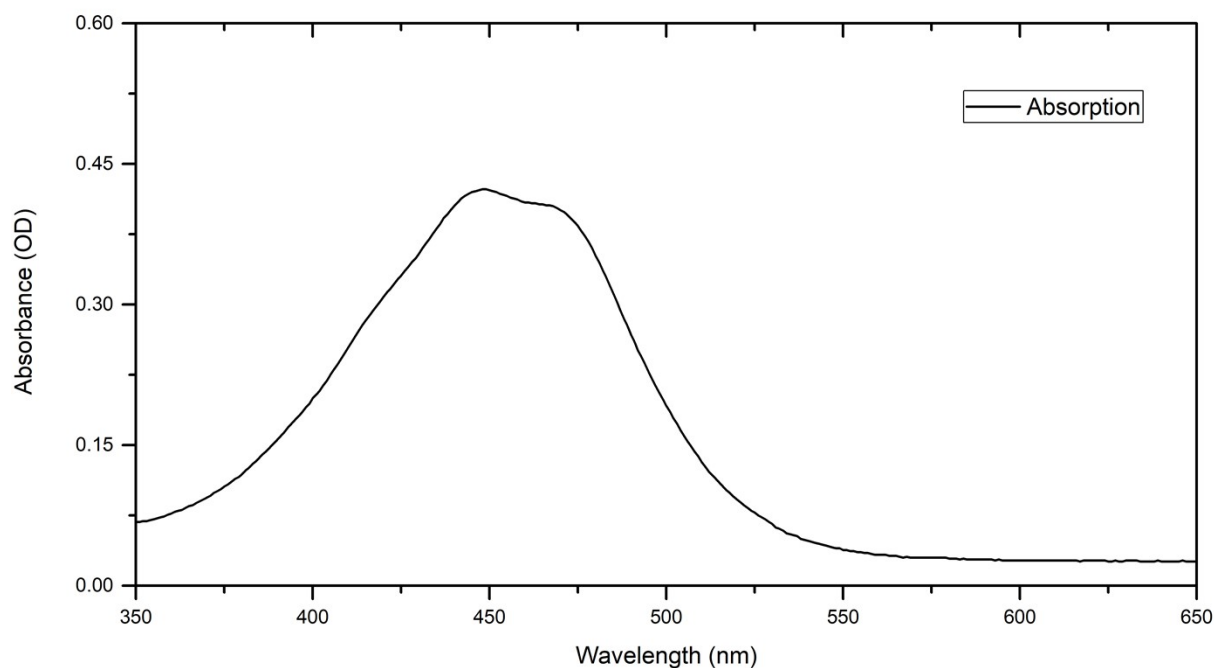
## Experimental Evidence of the $S_x$ State and Fluorescence Emission from the Intramolecular Charge Transfer States in Fucoxanthin

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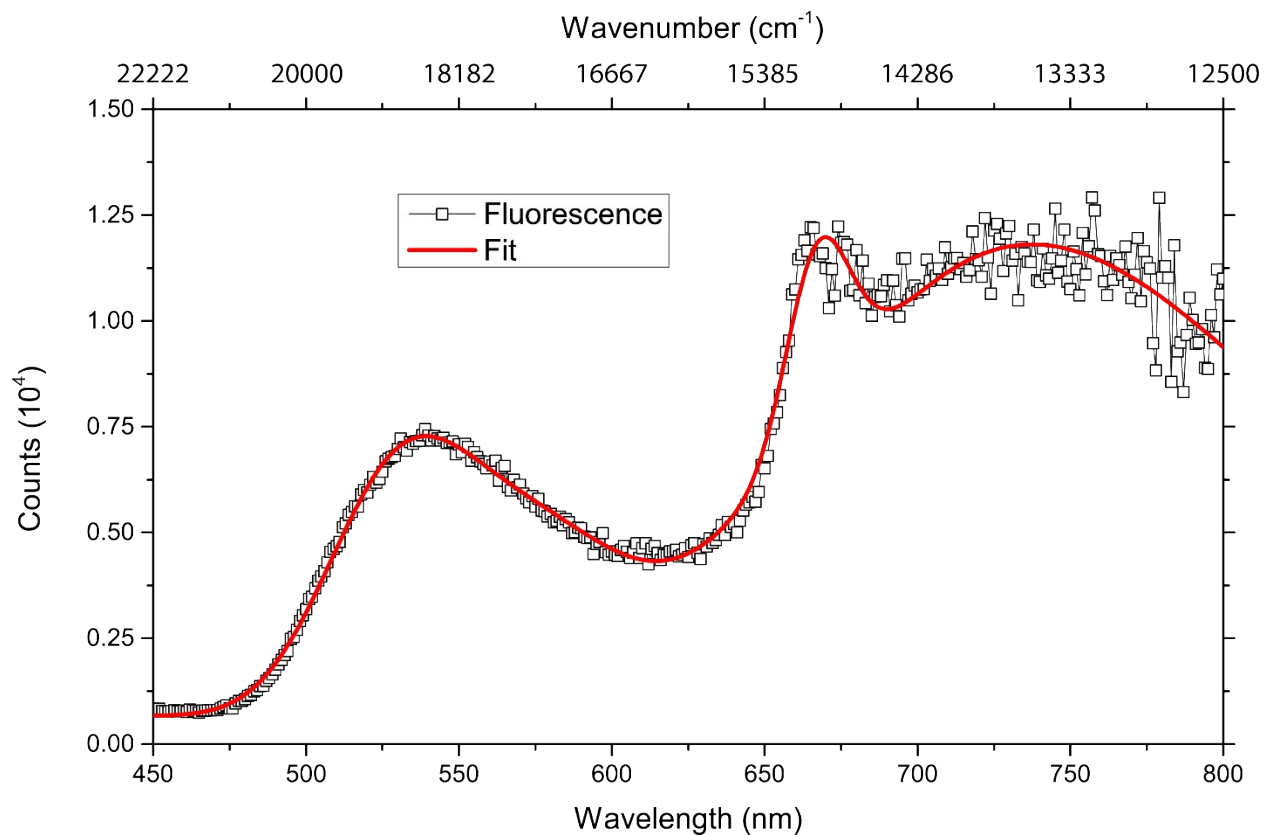
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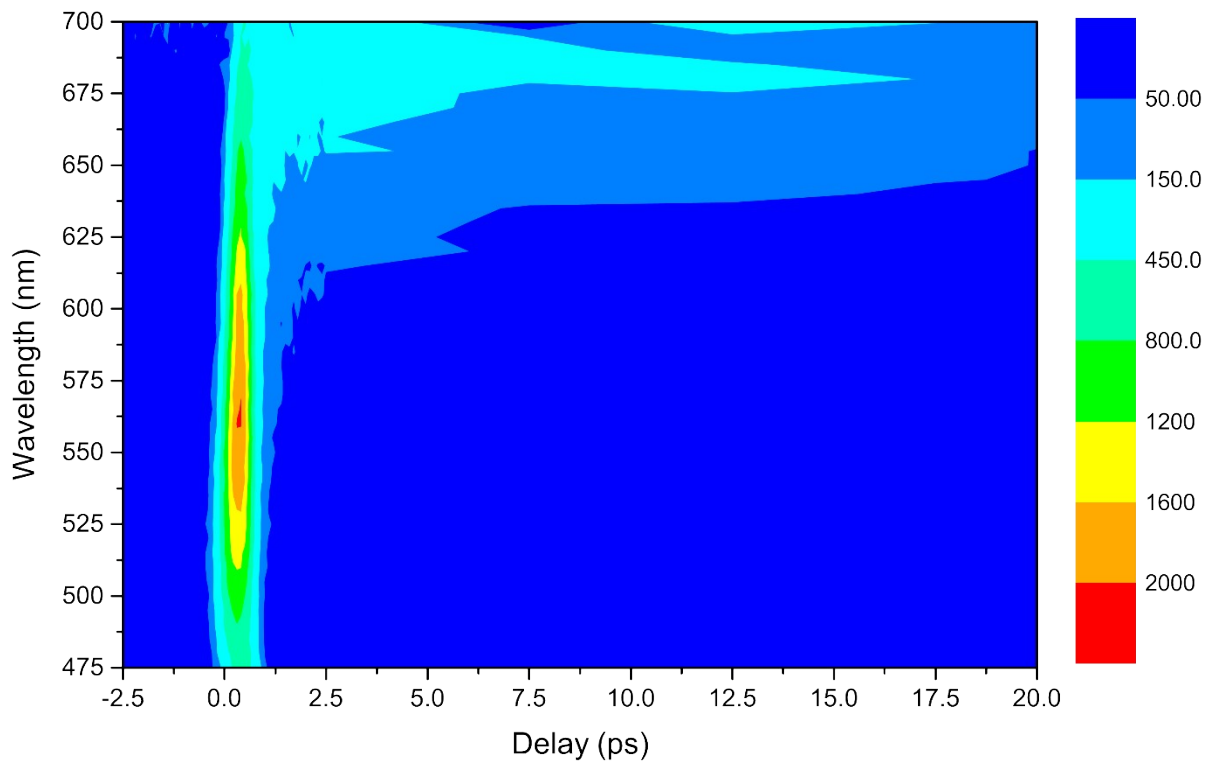
**Figure S1.** UV-Visible Spectrum of Fucoxanthin in Methanol.



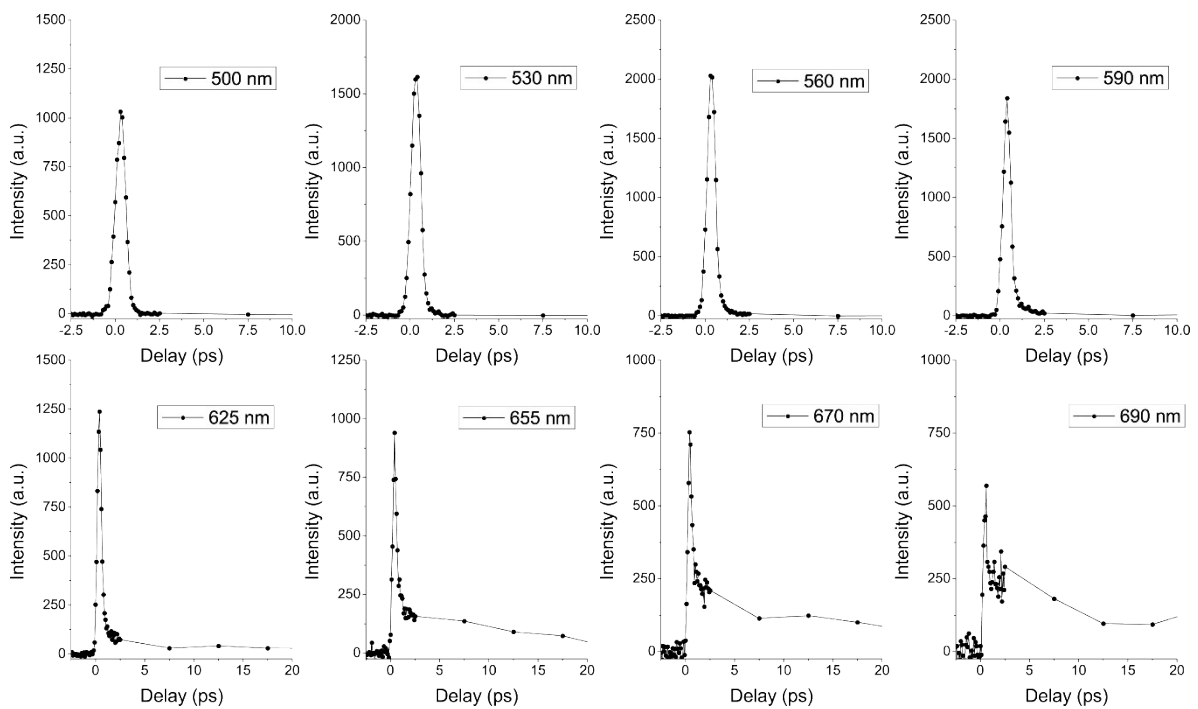
**Figure S2.** Fluorescence Emission Spectrum of Fucoxanthin in Methanol and The Fit Curve.

Component	1	2	3	4
Amplitude	6363.2±449.7	2309.8±961.9	4159.8±210.2	11098.3±144.5
Center (cm <sup>-1</sup> )	18761.0±149.5	17146.9±216.9	14985.3±9.8	13558.6±19.6
FWHM (cm <sup>-1</sup> )	1497.9±155.7	1125.5±214.6	357.9±20.9	2289.5±71.8

**Table S1.** The Parameters of Fit Curve Consisting of Four Gaussian Functions and R<sup>2</sup>=0.98.



**Figure S3.** Femtosecond Fluorescence Up-Conversion Map of Fucoxanthin in Methanol.



**Figure S4.** Fluorescence Dynamics of Fucoxanthin in Methanol at eight representative wavelengths.