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Supporting Information

Identification of two emitting sites in the dissipative state of the major light harvesting antenna

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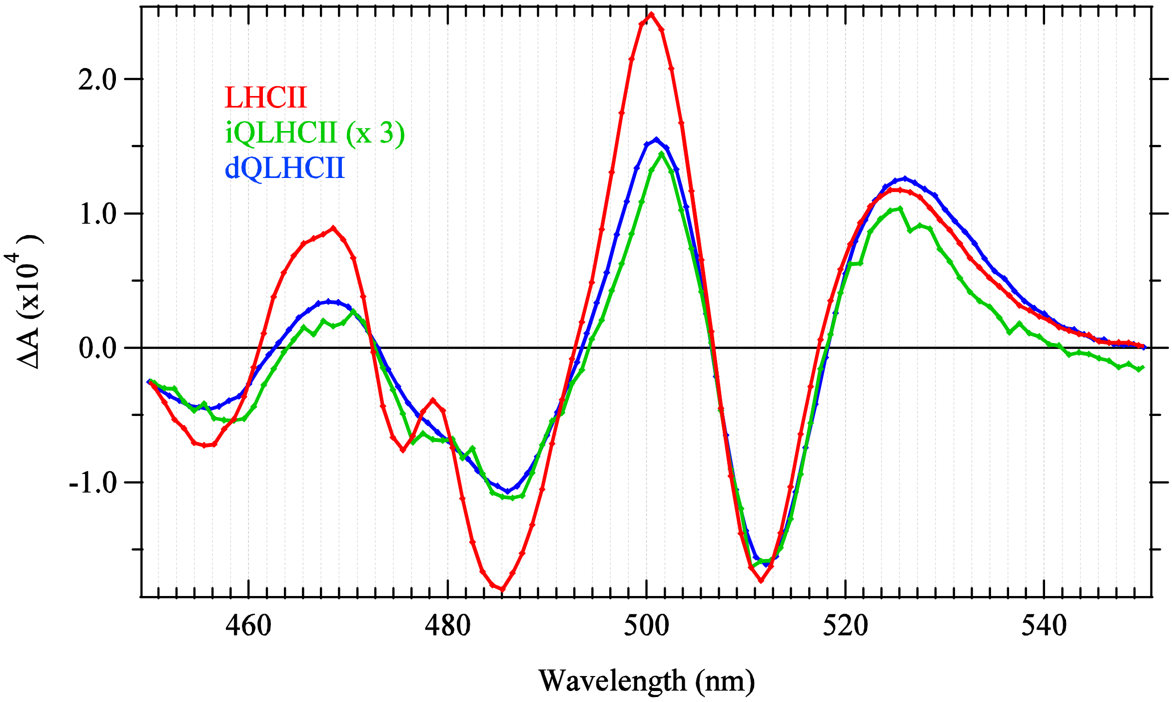

Figure S1: Stark Absorption (SA) spectra of LHCII (red line), iQLHCII (green line) and dQLHCII (blue line) measured in a glycerol/buffer glass at 77K with field strengths of 0.32 $MVcm^{-1}$ (LHCII), 0.30 $MVcm^{-1}$ (iQLHCII) and 0.33 $MVcm^{-1}$ (dQLHCII). The SA signal of iQLHCII is magnified by a factor 3.

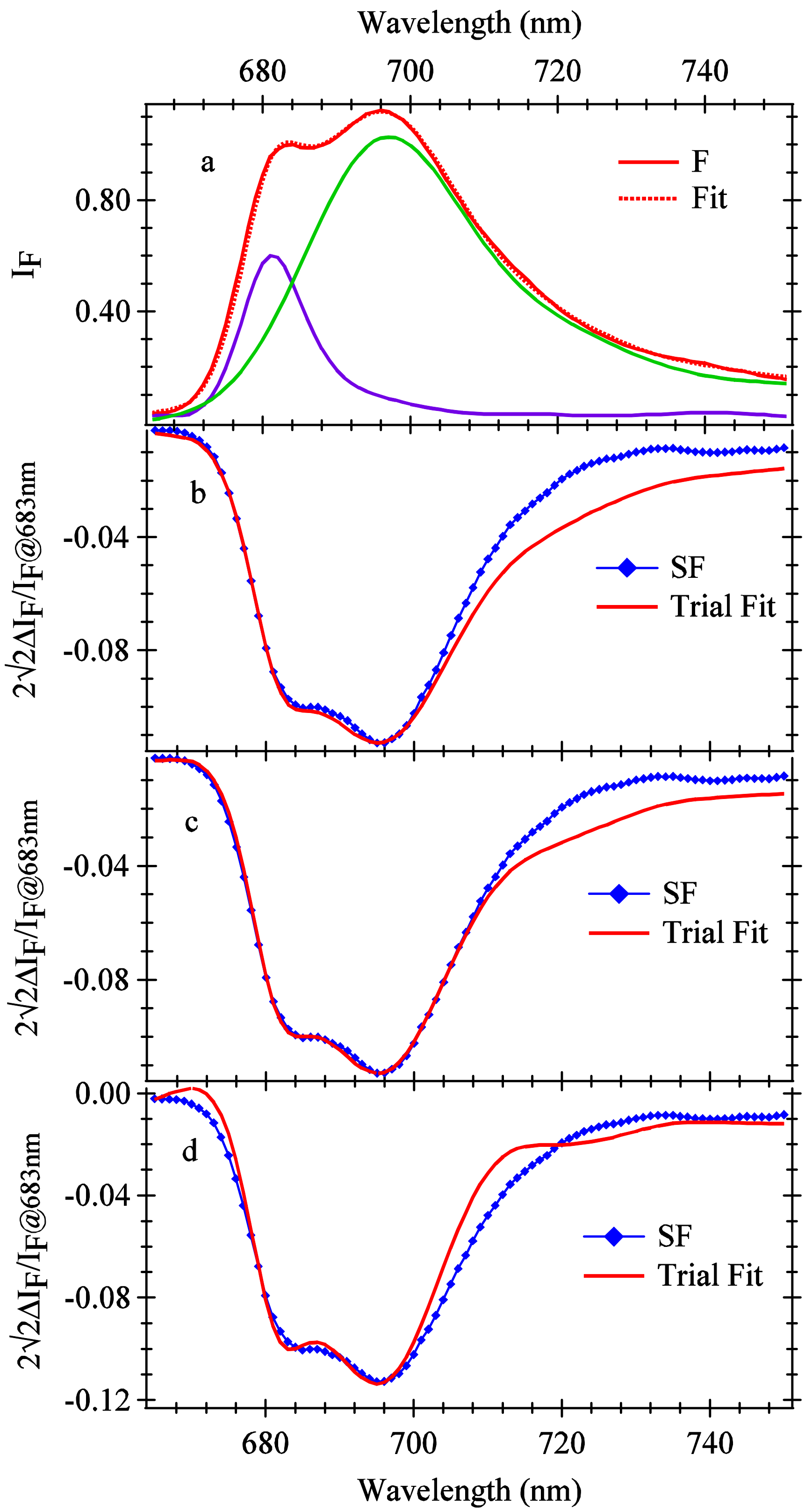
Wavelength (nm)
680
700
720
740
a
F
Fit
0.80
0.40
I_F
b
SF
Trial Fit
-0.04
-0.08
$2\sqrt{2}\Delta I_F/I_F$@683nm
c
SF
Trial Fit
-0.04
-0.08
$2\sqrt{2}\Delta I_F/I_F$@683nm
0.00
d
SF
Trial Fit
-0.04
-0.08
-0.12
$2\sqrt{2}\Delta I_F/I_F$@683nm
680
700
720
740
Wavelength (nm)

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Figure S2: (a) Deconvolution of the fluorescence spectrum of dQLHCII into the exciton (violet line) and CT696 (green line) bands. As in Figure 5 of the main text, the fluorescence spectrum of the unquenched LHCII was used to reproduce the exciton band and the CT696 band was reproduced by a combination of a number of Gaussian curves. (b-c) Modeling of the SF spectrum obtained with the linear superposition of the zeroth, first and second derivatives (Liptay approach) of the two bands with substantially different weights of the second derivative of the CT696 band (increased from panel b to c). It is clear that the SF signal in the 710 to 750 nm region cannot be modeled by this approach even if a large weight of the second derivative of the CT696 band is used (panel d).This indicates that the observed reduction of the SF spectral bandwidth cannot originate from a large contribution of the second derivative of the CT696 band and must have other physical origin.