



**Fig. S8. Pigment distribution and energy transfer pathway.**

(A) Distances of pigments in an APC or PC trimer. The pigments are isolated from APC or PC trimer crystal structures.

(B) Estimated distances of pigments in the Rb rod. Only the distances of central pigments are labeled.

(C) Estimated distances of pigments in core B, core A1, and between core B and core A1.

(D) A map showing the estimated distances of pigments between rods and the core as in Fig. 5B. Please be noted that the relative relationships among the numbers are more biologically significant than their absolute values.

(E) Energy transfer pathway from PBS to PSII. Terminal emitter from A1-3 is close to chlorophylls from CP43. Nearest distances are indicated by dashed lines and labelled (from left to right, these chlorophylls #35, #38, #36 from CP43, as reported in previous publication<sup>5</sup>. The unit of the estimated distances is in Å.