Abstract Submitted
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**Two-Dimensional Fourier Transform Electronic Spectroscopy of Peridinin and Peridinin Analogs**[1] SOROUSH KHOSRAVI, MICHAEL BISHOP, RAZIB OBAID, HOPE WHITELOCK, ANN MARIE CARROLL, AMY LAFOUNTAIN, HARRY FRANK, University of Connecticut, WARREN BECK, Michigan State University, GEORGE GIBSON, NORA BERRAH, University of Connecticut — The peridinin chlorophyll-*a* protein (PCP) is a light harvesting complex in dinoflagellates that exhibits a carotenoid-to-chlorophyll (Chl) *a* excitation energy transfer (EET) efficiency of 85-95%. Unlike most light harvesting complexes, where the number of carotenoids is less than Chl, each subunit of PCP contains eight tightly-packed peridinins surrounding two Chl *a* molecules. The unusual solvent polarity dependence of the lowest excited $S_1$ state of peridinin suggests the presence of an intramolecular charge-transfer (ICT) state. The nature of the ICT state, its coupling to the $S_1$ of peridinin, and whether it enables the high EET efficiency is still unclear. Two-dimensional electronic Fourier transform spectroscopy (2DES) is a powerful method capable of examining these issues. The present work examines the ICT state of peridinin and peridinin analogs that have diminished ICT character. 2DES data adding new insight into the spectral signatures and nature of the ICT state in peridinin will be presented.

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