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Multidimensional electronic spectroscopy of phycobiliproteins from cryptophyte algae

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We describe new spectroscopic measurements which reveal additional information regarding the observed quantum coherences in proteins extracted from photosynthetic algae. The proteins we investigate are the phycobiliproteins phycoerythrin 545 and phycocyanin 645. Two new avenues have been explored. We describe how changes to the chemical and biological environment impact the quantum coherence present in the 2D electronic correlation spectrum. We also use new multidimensional spectroscopic techniques to reveal insights into the nature of the quantum coherence and the nature of the participating states.