

MS19 Experimental and theoretical advances in quantum crystallography

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Can we witness proteins traversing conical intersections via FEL-based crystallography?

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Abstract

Many photochemical reactions are thought to proceed via conical intersections, including biochemically mediated photochemistry. With the advent of hard X-ray free electron lasers, we have the ability to witness nuclear motions during conical intersection transversal with femtosecond and Ångström resolution. I will give a brief overview of the technical advances that have enabled this work, discuss why we think CIs play an important role in biology, and focus on one case study from my own work on photochemical DNA repair.