Studies of Heme Proteins by Time-resolved Crystallography: Allosteric Action and Structural Relaxation

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Time-resolved macromolecular crystallography has reached a mature phase with demonstrated ability to detect small structural changes on ns and sub-ns time scale [1-5] and with important advances in the analysis of time-resolved crystallographic data, such as the use of Singular Value Decomposition method to determine the structures of intermediates and elucidate the reaction mechanism [5-6]. We present results of ns time-resolved crystallographic studies of heme proteins: allosteric action in real time in cooperative dimeric hemoglobin and structural relaxation processes in myoglobin. Studies were carried out at the BioCARS beamline 14-ID at the Advanced Photon Source (USA).

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