

Accelerating 2D IR Measurements of Protein Dynamics

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Abstract:

2D IR spectroscopy is a powerful tool for measuring the dynamics of complex systems like proteins and has great potential as a high-throughput screening tool. Long measurement times, however, presented a major obstacle in such applications. The long measurement times result both from the large quantity of data required for extracting the underlying dynamics and from the relatively weak signals involved with low concentrations of poor chromophores. I will present several improvements to the measurement and analysis of 2D IR spectral data to determine protein dynamics. These innovations both reduce the measurement times and improve our ability to accurately determine the protein dynamics from the 2D IR data. These improvements are moving 2D IR spectroscopy represent important steps towards the development of high-throughput screening methods using 2D IR spectroscopy.