

Terahertz Dielectric Sensitivity to Protein Dynamics

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An overview of the terahertz spectroscopy of biomolecules will be given. A brief review of early work done by Fourier transform spectroscopy will lead to a discussion on the technique of terahertz time domain spectroscopy (TTDS). I will briefly mention applications of TTDS to biomolecular identification. The talk will then focus on our work examining how terahertz dielectric response is sensitive to protein dynamics: conformational change for bacteriorhodopsin, oxidation state for cytochrome c, hydration dependence, and temperature dependent dynamical transitions in hen egg white lysozyme and cytochrome c.