

Abstract Submitted
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Time-resolved dielectric spectroscopy of protein aggregation performed on model system of hen lysozyme and beta-lactoglobulin BRIAN MAZZEO, Brigham Young University, ANDREW FLEWITT, University of Cambridge — Time-resolved dielectric spectroscopy measurements of solutions containing hen lysozyme and beta-lactoglobulin reveal changes in electrical configuration and hydrodynamic parameters during their interaction. These measurements were performed in a temperature-controlled dielectric cell connected to an HP4194A impedance analyzer. The protein titrations were performed by sequential additions of reacting proteins. Differential spectra reveal the electrical contributions by each species. The computer-controlled measurements and relevant post-processing of the obtained spectra allow quantitative extraction of reaction parameters. This is demonstrated for a model system of proteins consisting of hen lysozyme and beta-lactoglobulin. Reorientation time constants, dielectric increments, and relaxation spread parameters are plotted against time and indicate binding processes. The technique is demonstrated to be a useful analytical tool for monitoring reactions in biological and colloidal systems.

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