Abstract Submitted
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Broadband Liquid Dielectric Spectrometer SATYAN CHANDRA, JESUS ARELLANO, BRIAN MAZZEO, Brigham Young University — A dielectric spectrometer was built to measure the dielectric relaxation of proteins in solution. The dielectric cell consisted of two parallel stainless-steel electrodes (separation of 8.5 mm) embedded in PTFE. To provide temperature stability, thermally regulated water flowed through both electrodes. The cell was connected to a 4294A Precision Impedance Analyzer, providing impedance measurements from 40Hz to 110 MHz. Due to electrode polarization and high frequency parasitics, useful measurements were obtained for frequencies ranging from 10 kHz to 10 MHz. Calibration was performed using air, iso-propanol and deionized water. Experiments were also conducted on buffers and salt solutions. The dielectric relaxation of the protein beta-lactoglobulin was measured at mg/ml concentrations.

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