

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Broadband Dielectric Response of Insulin and Bovine Serum Albumin in Solution J. BOOTH, N. ORLOFF, Y. WANG, NIST, J. DENNIS, University of Colorado, I. TAKEUCHI, University of Maryland — We report on quantitative frequency-dependent permittivity measurements of nanoliter volumes of bovine serum albumin and insulin in solution, using microfluidic channels integrated with planar microwave frequency transmission lines. Our measurements yield quantitative values for the solution permittivity as a function of frequency for different values of protein concentration, over the broad frequency range 45 MHz to 40 GHz. Analysis of these data based on dielectric mixing models allows us to extract quantitative values for the effective molecular permittivity of the aqueous proteins, as a function of frequency.

J. Booth
NIST

Date submitted: 20 Nov 2009

Electronic form version 1.4