

Abstract Submitted
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Real-time measurement of the complex refractive index of turbid colloidal suspensions¹ SAMIR BALI, WILLIAM CALHOUN, LM BALI, Miami University, MICHAEL MCCLIMANS, Schlumberger-Doll, SHARMISHTHA ROY, Davis and Elkins College, WV — We demonstrate the simultaneous measurement of the real and imaginary parts of the refractive index of turbid colloidal suspensions by measurement of the intensity reflected from the turbid sample of an incident laser beam. The entire reflectance curve for a range of incident angles around the critical angle for total internal reflection is obtained in real time. We find that the reflectance data can be fit very well using a simple plane-wave Fresnel theory. To the best of our knowledge, this is the first time good agreement between the reflection data and theory has been demonstrated for turbid samples. For our turbid samples we use milk, and Liposyn which is a tissue-simulating liquid phantom that is widely used in investigations of the scattering of light in human tissue.

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Samir Bali
Miami University

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