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**Empirical Model for Total Internal Reflection (TIR) from Highly Turbid Media**<sup>1</sup> KASHIKA GOYAL, MIAO DONG, BRADLEY WORTH, LALIT BALI, SAMIR BALI, Department of Physics, Miami University — Recently we introduced a new empirical model for total internal reflection (TIR) from a highly turbid medium [W. Calhoun, et al, *Opt. Lett.* **35**, 1224-1226 (2010); *ibid* **36**, 3172 (2011)]. The key feature of our model is that it incorporates into Fresnel theory the effect of angle-dependent penetration of the incident light into the medium. Here we show that the TIR data is, for the first time, well described by a model which has no extraneous fitting parameters. As a further check we use our model to extract the particle size for a highly turbid aqueous solution of monodisperse polystyrene microspheres of known size. Next we apply our model to a first in-situ measurement of average particle size in a widely used intravenous human nutrient

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Prefer Oral Session  
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Kashika Goyal  
goyalkg@muohio.edu  
Department of Physics, Miami University

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