Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Probing Volume Changes and the Intracellular Water in Single Erythrocytes SANGHOON PARK, SILKI ARORA, JENNIFER MAUSER, DEBOPAM CHAKRABARTI, ALFONS SCHULTE, University of Central Florida — In the living cell, water is one of the most abundant substances, and cells have developed very efficient machinery for transporting water in and out. Erythrocytes can undergo large, but reversible, volume changes under hydrostatic pressure and a possible mechanism may involve transport of water. We employ confocal micro-Raman spectroscopy over the frequency range from 150 to 4000 cm^{-1} to probe both the intracellular hemoglobin and water in individual red blood cells under physiological conditions. We investigate changes in the OH stretch bands near 3400 cm^{-1} due to the cellular water. Results of experiments that employ variations in external parameters such as pressure will be presented.

Alfons Schulte
University of Central Florida

Date submitted: 22 Nov 2011 Electronic form version 1.4