

PLEASE POST

Physics Department Seminar

Friday February 4th, 2000

11:00am in PhSc 105

“Measuring the Interdiffusivity Between Two Fluids By Optical Refraction”

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Abstract:

If a pure, transparent fluid floats on top of a transparent solution there is an abrupt change in the refractive index at the interface between the fluids. As these two fluids diffuse into one another the abrupt change smears out into a continuously changing refractive index in the mixing region. Light incident on this region will be refracted due to this refractive index gradient. By monitoring this gradient over time one may obtain the solute concentration profile over time and hence information on the diffusion process taking place. We have used this relatively simple experimental technique in conjunction with Fick's Law for diffusion to obtain the effective diffusion coefficient for several solutions.