Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Temperature Effect on Transport Dynamics of a Cationic Molecule across an anionic Liposome JOON HEON KIM, MAHN WON KIM, Department of Physics, Korea Advanced Institute of Science and Technology — By using second harmonic generation (SHG), we have studied the transport dynamics of cationic triphenylmethane dyes across anionic liposome bilayers. Because the square root of SH signal is proportional to the difference between the surface density of dye molecules on both sides of the bilayers, the time dependence of the SH signal provides nondestructive and in-situ information on the transport of these dyes across liposome bilayers. In this experiment, we measured the time dependence of SH signal as a function of temperature and dye concentration. The temperature dependence of the transport rate follows the Arrhenius equation. We found that activation energy is about 1 eV and independent of dye concentration. This indicates that the charge interaction plays an important role for the transport. Furthermore, we observed some interesting phenomena related with dye concentration dependence of the transport dynamics.

Joon Heon Kim
Department of Physics, Korea Advanced Institute of Science and Technology

Date submitted: 14 Dec 2004 Electronic form version 1.4