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Light-enhanced diffusion at the solid-liquid interface SUNG CHUL BAE, JANET WONG, STEVE GRANICK, Department of Materials Science and Engineering, University of Illinois — Positively-charged rhodamine 6G molecules were allowed to adsorb onto quartz and mica surfaces and their translational and rotational diffusion was studied simultaneously by combined fluorescence correlation spectroscopy and time-correlated single photon counting. Surprisingly, the surface translational diffusion coefficient increased in direct proportion to the laser power used to excite these dye molecules. To elucidate the diffusion mechanism, we have investigated the excitation wavelength dependence, the spatial position dependence of diffusion coefficients, and the correlations between rotation and translation motion.

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