Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Interactions between the HIV TAT domain and cell membranes
ABHIJIT MISHRA, HONGJUN LIANG, Department of Materials Science & Engineering, University of Illinois, GERARD WONG, Department of Materials Science & Engineering, Department of Physics, Department of Bioengineering, University of Illinois — Biologically active molecules such as proteins and oligonucleotides can be transduced into cells with high efficiency when covalently linked to a Protein Transduction Domain (PTD), such as the TAT domain in the HIV virus. All PTDs have a high content of basic amino acids resulting in a net positive charge. Electrostatic interactions between cationic PTDs and the negatively charged phospholipids that constitute the plasma membrane seem to be responsible for peptide uptake, but no detailed structural studies exist. We present recent results on the structures of self-assembled complexes of the cationic TAT domain and anionic lipid bilayers using synchrotron x-ray scattering and electron microscopy, and examine possible mechanisms of the anomalous transduction.

Abhijit Mishra
Department of Materials Science, University of Illinois

Date submitted: 06 Jan 2005 Electronic form version 1.4