Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Swelling and surface modification of ultrathin chitosan films CHRIS MURRAY, OLEG STUKALOV, AMY JACINA, JOHN DUTCHER, University of Guelph — Chitosan is a biodegradable polysaccharide derived from seashell waste products. The high water absorbency and biocompatibility of chitosan have enabled its use as a hydrogel in specialty biomedical applications. We present the results of several experiments focused on characterizing properties of ultrathin films of chitosan critical to their use in techniques such as wound dressings, medical implants and drug delivery systems. Uniform thin films with thicknesses of 15 to 600 nm and rms roughness of the order of 1 nm were prepared using techniques previously developed in our research group. The swelling of these films in the presence of high humidity has been characterized using reflection ellipsometry, atomic force microscopy and quartz crystal microbalance techniques. The effects of exposure to elevated temperature and UV/ozone (a common surface modification technique) on the surface properties such as hydrophobicity are described.

John Dutcher
University of Guelph

Date submitted: 01 Dec 2004 Electronic form version 1.4