Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Formation of Stable Polymer Glasses via Matrix Assisted Pulsed Laser Evaporation KIMBERLY SHEPARD, YUNLONG GUO, RODNEY PRIESTLEY, Princeton University — Via Matrix Assisted Pulsed Laser Evaporation (MAPLE), we are able to form amorphous polymer films that exhibit significant changes in material properties and structure. In the MAPLE method, a pulsed laser ablates a target, consisting of a frozen dilute solution of the desired polymer, in order to produce films of the material. By carefully controlling the growth rate of film formation and the substrate temperature during deposition, we are able to form glassy films with structures that are either less or more dense compared to the standard glass. Interestingly, the morphology of the low and high-density amorphous films is significantly different. The low-density glasses are nanostructured and the high-density glasses are not. In this poster, we discuss how MAPLE can be used to tune the morphology and hence, the properties of polymer glasses.

Kimberly Shepard
Princeton University

Date submitted: 11 Nov 2011 Electronic form version 1.4