Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Long-range correlated dynamics in amorphous selenium[1] TIANYI LIU, RICHARD STEPHENS, ZAHRA FAKHRAAI, Univ of Pennsylvania — Recent works in supported polymer and organic molecular films have shown that the thin and bulk films exhibit very different average relaxation time due to the influence of the free surface in enhancing the dynamics in layers close to the free surface. When increasing the film thickness to up to 100nm, there exists a transition from liquid-like to glassy behavior. The mid point of the transition for both polymer and organic molecular glasses are found to be ˜30nm. We use cooling rate-dependent Tg measurements to demonstrate in this work that an inorganic network glass, amorphous selenium, exhibits the similar enhanced dynamics in thin films. This observation suggests a long-range correlated dynamics in amorphous selenium. The result can help elucidate the origin of enhanced dynamics in thin glasses, and also broaden the existing literatures on correlated dynamics in amorphous thin films.

[1]Z.F. acknowledges funding from the University of Pennsylvania and seed funding by MRSEC program of the National Science Foundation under Award No. DMR-11-20901 at the University of Pennsylvania. R.S. acknowledges funding from MRSEC grant at UPenn.

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Date submitted: 01 Nov 2016 Electronic form version 1.4