Finite Element Analysis of Nanoparticle embedding into glassy polymers MARK ILTON, JAMES A. FORREST, Dept. of Physics and Astronomy, University of Waterloo — The embedding of rigid nanospheres into the surface of thin film glassy polymers was modelled using a Finite Element Analysis. This method of analysis readily adapts to various material models, film thicknesses, and substrates. Moreover, it allows for modelling of the related hole relaxation process when embedded nanospheres are removed from the film. Calculations using a viscoelastic constitutive model with depth dependent material properties are compared to recent experimental results. The results are discussed in the context of the proposed near surface enhanced dynamics in thin film glassy polymers.

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