

Abstract Submitted  
for the MAR13 Meeting of  
The American Physical Society

**The investigation of the viscoelastic properties of silica/PMMA nanocomposites as a function of silica surface chemistry**<sup>1</sup> HEATHER CONWAY, DENIZ RENDE, RAHMI OZISIK, Rensselaer Polytechnic Institute — Poly(methyl methacrylate), PMMA, has been used as an economic alternative to glass and polycarbonate in differing situations because of its lightweight, shatter resistance, and ease of processability. The uses of PMMA can be expanded if its weakness to impact force and its scratch resistance are improved. In the current study, viscoelastic properties of silica nanoparticle filled PMMA were investigated via nanoindentation experiments. Silica nanoparticles are known to increase the toughness of PMMA. In the current study, silica nanoparticles were chemically modified with fluorinated alkanes to alter nanofiller-polymer interactions. Results show that viscoelastic properties are strongly affected by silica surface chemistry and silica concentration.

<sup>1</sup>This work was partially supported by NSF CMMI-1200270 and DUE-1003574

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Date submitted: 18 Dec 2012

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