Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

**Induced Thermal Dynamics in Aerosil Dispersed Glass Forming Liquid** DIPTI SHARMA, GERMANO IANNACCHIONE, Worcester Polytechnic Institute — A high-resolution calorimetric spectroscopy study has been performed on pure glycerol and colloidal dispersions of an aerosil gel in glycerol covering a wide range of temperatures from 300 to 380 K, deep in the liquid phase of glycerol. The colloidal glycerol+aerosil samples with 0.07, 0.14, and 0.32 grams of silica per $cm^3$ of glycerol reveal activated energy (thermal) dynamics at temperatures well above the $T_g$ of the pure glycerol. The onset of these dynamics appears to be due to the frustration or pinning imposed by the silica gel on the glycerol liquid. Since this behavior occurs at relatively low silica density (large mean-void length compared to the size of a glycerol molecule), this induced dynamics is likely due to a cooperative mode of glycerol molecules with the aerosil gel via mutual hydrogen-bonding. However, the exact nature of these energy dynamics is not known. The study of such frustrated colloids may provide a unique avenue for illuminating the physics of glasses.

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Date submitted: 21 Nov 2006 Electronic form version 1.4