Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Rubber Friction -A Molecular Picture[1] ANISH KURIAN, KUMAR NANJUNDIAH, ALI DHINOJWALA, THE UNIVERSITY OF AKRON TEAM — Understanding the relationship between adhesion, friction and the interfacial structure has been of significant interest for many years. Most tribological experiments involve measuring friction and adhesion values to develop a molecular model to explain the macroscopic results. Here, we have used surface sensitive infrared-visible sum frequency generation spectroscopy (SFG) to study the interface between elastomer and solid surfaces. SFG is a second order nonlinear optical technique that provides information on the chemical identity; orientation and concentration of the molecules at the interface. We have designed a friction cell to probe the changes in the interfacial structure during sliding using a femto-second laser spectroscopy. These results will be presented.

[1]This work was supported National Science Foundation

Ali Dhinojwala
The University of Akron

Date submitted: 21 Nov 2008 Electronic form version 1.4