

Abstract Submitted  
for the NMC15 Meeting of  
The American Physical Society

**Shear Thickening fluids for Impact Resistant Materials<sup>1</sup>** JEHNAE LINKINS, TULIO FREITAS, NORMAN WAGNER, None — Athletes are frequently vulnerable to high Impact accidents such as concussions or broken bones. We believe that protective equipment retrofitted with shear thickening fluids (STFs) have been proved to offer exceptional defense against ballistic and impact threats. It has been recommended to use the STF nanocomposites to expand the protection for athletes, specifically soccer players, from the high impact and pressures of opposing forces. The STF moves like a liquid until an object strikes or agitates it forcefully; then it hardens in a few milliseconds. If there is a sudden impact of energy overwhelms the repulsive forces between particles, forming masses called Hydro clusters. When the energy stops the particles repel each other again and the solid substances become a liquid again. The fluid is a colloid that is made up of tiny particles suspended in a liquid. The particles repel each other slightly, so they float easily through the liquid without clumping together or settling at the bottom.

<sup>1</sup>Wagner Escor 11

Jehnae Linkins  
None

Date submitted: 22 Sep 2015

Electronic form version 1.4