Registration Form

TEAM INFORMATION

Team Name/Project Title: Peraton Gas Gun Soft Catch

Department: Mechanical Engineering

Faculty Advisor: Peter Jenkins

Team Members: Joe Arellano, John DeCastro, Kelton Grange, Levi Romero, Mark Ross

PROJECT INFORMATION

Description:

Designing a system that will allow for high speed impact samples to be recovered without secondary damage.

Abstract:

Peraton is a defense contracting company supporting missions in all operational regimes. In their Colorado Springs office they have a single-stage light gas gun used to test materials for re-entry. The projectile, which will be referred to as a sabot, is inserted into the breach at the start of the 20+ foot gun. Light gas such as helium is compressed behind the sabot creating enormous pressure then it is exposed to atmosphere to launch it down the barrel where it will hit the target. Within the target is a sample material which we are trying to catch without secondary damage. The target is launched after being impacted into a catch tank along with the sabot, and the catch is currently softened by ripped denim rags. The problem with this system is that the target material is destroyed during this secondary impact from the denim and a better soft-catch system is needed. The sample is measured with a PDI (Photonic Displacement Interferometer) to check for spallation but a visual check after sectioning the recovered sample is desired. If the project goes well, this will be the achieved outcome.