

Talks and Posters

Society of Physics Students [Zone 9 Meeting](#)
Geosciences Building, Augustana College, Rock Island, Illinois
Saturday, Nov. 21, 2009

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poster

"Studying the sensitivity of bullet impact on common and novel protective vest structures"

Eddie Maldonado, University of Northern Iowa, em504346@uni.edu

We present the results of Material Point Method (MPM) computer simulations of AK-47 bullet impacts on composite ceramic protective vests with Kevlar and spider web fibers. The algorithm is coded in C++ and involves varying composition and dimensions of the vest as well as the bullets, with up to 1.2 million particles in the simulations. Results suggest that the program is very sensitive to material breaking points and nominally sensitive to finite size effects.

10 minute talk

"Pulsed Light Using a Semiconductor Saturable Absorber Mirror"

Kyle Weigand, Augustana, kyle-weigand@augustana.edu

Fiber lasers using saturable absorption in a semiconductor mirror can produce optical pulses on the order of picoseconds in an all-fiber configuration. My talk will review the components of this fiber-laser and how they work to produce ultrafast pulses. In addition to showing experimental results, I will review some of the theory and background of mode-locked fiber-lasers, particularly the semiconductor saturable absorber mirror configuration.
