

Abstract Submitted
for the SHOCK11 Meeting of
The American Physical Society

Developing Impact Marking Projectiles Using Triboluminescent Materials WILLIAM HOLLERMAN, University of Louisiana at Lafayette, ROSS FONTENOT, Alabama A&M University, BRADY BROUSSARD, BMB Discount Guns, Ammunition, and Supplies, SHAWN GOEDEKE, COREY GUIDRY, University of Louisiana at Lafayette — In 1888, Wiedemann and Schmidt defined triboluminescence as the emission of light produced by mechanical action. In 1999, Sage and Geddes patented a design for a sensor capable of discerning the locations of impacts. Their design involved embedding a sensor inside a material coated with a triboluminescent crystal. Using this idea, the authors have been investigating the triboluminescent properties of several materials (like ZnS:Mn) for their possible use as the active element in ballistic projectiles. These new and improved rounds would be very useful because triboluminescence would mark the landing point of the projectile. This light would be “cold” in the sense it was not generated as a result of burning gunpowder or similar pyrotechnics. This light emission would also have a relatively short duration compared to other new projectiles, which generate long-term phosphorescence when two chemicals are mixed at impact (chemiluminescence). This presentation will give a status report in our efforts to develop practical impact marking ballistic projectiles using a triboluminescent charge.

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Date submitted: 09 Feb 2011

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