

## 50 Caliber Round Sand Penetration

Dr. Don T. Berry  
Institute for Advanced Technology  
University of Texas at Austin  
Austin, Texas

Cadet Nathaniel A. Clark  
United States Military Academy  
West Point, New York

### ABSTRACT:

This study examined the behavior of a sabot, .50 caliber round when fired into sand. The purpose of this experiment was to gain insight on the reactions that occur upon the impact of a projectile with a target. Sand was chosen as a medium for the experiment because sand does not destroy the round and sand decelerates the round slowly, allowing the rounds behavior to be more easily observed. The path of the projectile and its behavior at different velocities are examined in this report. A relationship between the velocity of the projectile and its ability to fracture sand is also examined. Sand penetration research is still in the infant stages and continues in hopes that the knowledge gained from the research will benefit the design of future ballistics.

KEYWORDS: Sand Penetration, Sand Fracture,

CONTACT: Don T. Berry, Institute for Advanced Technology, University of Texas at Austin, Austin, Texas Tel: (512) 232-4465,  
Email: don\_berry@iat.utexas.edu

CDT Nathaniel A. Clark, United States Military Academy, West Point, NY,  
Tel: (845) 515-3044, Email: Nathaniel.Clark@usma.edu