

Abstract Submitted
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Initiation of Explosives From the Bow Shock of a Supersonic Penetrator ERIC N. FERM¹, Los Alamos National Laboratory — An analytic and computational study of supersonic penetration of an explosive is presented. The goal is the development of an initiation criterion relating projectile diameter and threshold projectile velocity determined by fundamental material and explosive parameters. The basis of the initiation criterion is an examination of the steady flow structure around a supersonic penetrator in the unreacted materials, yielding the states along the bow shock and the size and sonic character of the flow structure. The state is used to determine the time scale of the reacting explosive using initiation experiment results (Pop Plot). The size of the subsonic region is compared to the failure diameter to examine the viability of the initiation. The results are compared with experimental initiation criterion.

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Eric N. Ferm
Los Alamos National Laboratory

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