

Future Ballistics: A Multidisciplinary Approach

K K CHAND and R APPAVURAJ

Proof & Experimental Establishment (PXE), Chandipur, Balasore, Orissa, India
kkchandpxe@hotmail.com and ⁺appavuraj@yahoo.co.in

Received : 11.11.2014 ; Accepted : 20.1.2015

Abstract : Ballistics is the science dealing with the motion of bodies projected through space. Improvement in accuracy in terms of range extension is an important objective for future ballistics via artillery projectile systems. The future challenges facing the continued development and applications of the ballistics sciences are becoming vastly more complex phenomena. While the fundamental laws of science remain unchanged, the added constraints and requirements of modern system design provide substantial challenges to the future ballisticians. Quality, Reliability and Safety (QRS) and environmental considerations are of growing importance, performance requirements are increasing, and testing is becoming increasingly prohibitive, both in terms of cost and unacceptable consequences. New design techniques and tools are required which can quickly explore and discriminate between viable and non-viable design options, assessing both safety and performance of a proposed system, prior to having to commit to hardware and conduct expensive tests. In view of above, this paper advocates a modeling, simulation and visualization (MSV)-based approach to system design as a practical aspects of simultaneously realizing higher performing, safer, and more affordable systems, all within a shortened acquisition cycle period and also reduced development cost.

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