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Artillery Projectile Trajectory Motion: A Multi-disciplinary Computational Approach of a Dynamic Physical System

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Abstract : One of the most important methods in current scientific and technological research is process of modeling and simulation of real experiment as well as real experimental device. System approach, modeling and simulation are discipline with its own theory and research methodology. This paper focuses to the theory of the process of modeling and simulation, visualization and model validation and verification of real experiment and experimental device. Multidisciplinary approach is also discussed. Step by step there will be depicted the process of creation of static and dynamic mathematical model of the real experimental device - *Artillery Projectile Trajectory Motion (APTM)*. Mathematical model is supplemented the simulation model written in MATLAB. Visualization is a part of the simulation model. Validation of the mathematical model as well as verification of the simulation model is also discussed.

Keywords: Mathematical model, computer simulation, multidisciplinary approach, system approach, artillery projectile trajectory motion.

[Full Paper]