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Visualization of Shock Wave Diffraction on 3D Edge

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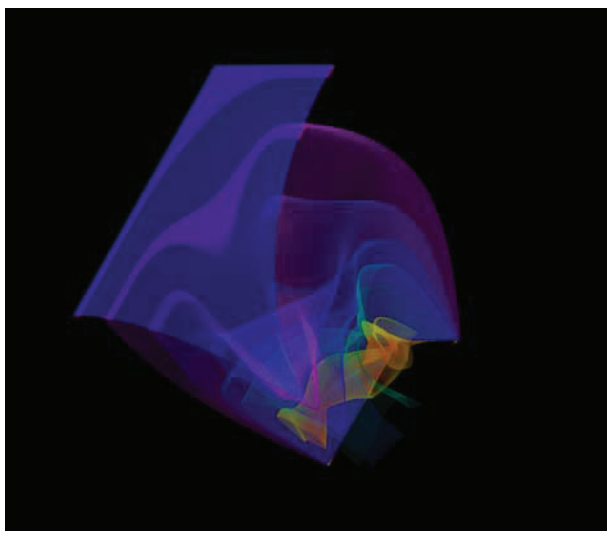

Pressure iso-surfaces, colored according to density

From the rear, the solid edge has been removed to improve the transparent view

Strong shock wave diffraction on a three-dimensional sharp edge was simulated using the GasDynamicsTool CFD package. Wave velocity was 2400 m/s, and the calculation domain consisted of 45 million cells. Computation was done using a dual-processor PC (Athlon 1800+ 1.5 Gb RAM). A very complicated flow pattern arises after diffraction in the vicinity of edge tip. In order to visualize this flow, semitransparent voxel technology in iso-surface realization was used.

Twin Barrel Artillery System Function

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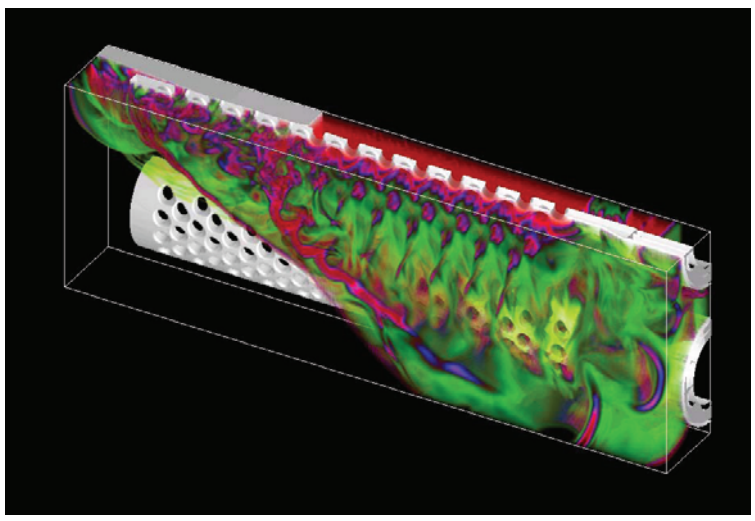

First derivative of pressure distribution

It illustrates the operation of a twin barrel artillery system. Each barrel has muzzle break consisting of holes that is designed to reduce the recoil. The simulation was performed using the GasDynamicsTool (GDT) CFD code, and the ScientificVR package provided the visualization. At the moment of image capture, a projectile is leaving the muzzle of the upper barrel. Formation of the blast wave in front of the projectile and the lateral shock wave from outgoing gases from the gas vent holes are visualized well. The first-derivative of pressure is presented using the semitransparent voxel technique.