

Joseph Smith
Owner, Las Positas Group, LLC

Senior Scientist, Author, Presenter



Las Positas Group is a small Engineering Services organization specializing in internal, external, and terminal ballistics as well as related small arms issues. In addition, the business does small scale publishing.

Prior to the Las Positas Group, Joe dedicated several decades to weapons concept studies and weapons design at LLNL in Livermore and at the Air Force Armament Laboratory at Eglin AFB. He is known nationally and in some friendly nations as one who understands some arcane details of weapons performance.

Joe also spent three years as an Air Force Forward Air Controller in Vietnam and nearby countries. These duties included engaging in direct support for allied forces in both combat and instructor roles to include participation in the implementation of a new friendly nation air force. He also performed weaponeering assessments for obsolescent air delivered munitions that resulted in leveraging critical friendly air force funding shortfalls mandated by

the US Congress.

He worked with defense contractors and government agencies to develop advanced systems concepts. He often delivered presentations to senior officials in the military, government and industry to articulate the resulting weapons concepts.

These activities have developed and sharpened skills in multiple areas:

- Formulating and articulating systems and operational concepts
- Weapons concept definition and advocacy.
- Familiarity with high supersonic (Mach 4+) and hypersonic strike vehicle employment concepts.
- Defeat of hypersonic vehicles using ballistic methods.
- Thoroughly familiar with conventional and nuclear weapon design.
- Weapons effects and target interactions.
- Shaped charge design and penetration modelings
 - Modeling of the physics of jet break up and scatter
 - jet and particulate penetration of various media
- Earth penetrating weapon design for the defeat of buried hard targets
- Modeling and use of energetic materials
- Small arms internal, external and terminal ballistics
- Cartridge, sabot, projectile, barrel, and environmental interaction
- Propellant burn
- Detonation physics
- Case break-up
- Weaponeering for air and artillery strikes
- Weapons-related Probability of Kill
 - Probability of Hit assessment for fixed and non-maneuvering targets
 - Probability of Kill assessment given a hit
- Vehicular and Fixed target vulnerability assessment
- Conventional and Non-Conventional physics devices
- Small Arms modeling/analysis/experimentation.