



The IMPETUS Afea Software suite consists of the IMPETUS FE Solver, IMPETUS DEFENSE and IMPETUS ADVANCED, where the core foundation is the IMPETUS FE Solver.

#### **IMPETUS FE Solver:**

- ◆ ASET™ Elements. New high order fully integrated element formulations, which are extremely robust.
- ◆ High order tetrahedron elements which are accurate in bending and plasticity.
- ◆ Advanced “Node Splitting Algorithm” for modeling fracture and fragmentation.
- ◆ Fast and accurate GPU based contact algorithm.
- ◆ Easily switch between element order and mesh refinement at runtime.
- ◆ Robust explicit thermal solver.
- ◆ State-of-the-art Post-Processor, tailored for different applications.
- ◆ Post-Processor’s pre-phase assembly mode simplifies model building, and includes a material database.

#### **IMPETUS DEFENSE:**

- ◆ IMPETUS FE Solver.
- ◆ Discrete Particle Method (iDPM) for modeling explosive events. Soil, HE and Air modeled with particles.
- ◆ iDPM is accurate and easy to set-up and modify at runtime.

#### **IMPETUS ADVANCED:**

- ◆ IMPETUS FE Solver.
- ◆  $\gamma$ SPH solver. Computationally fast and can handle 40+ millions SPH particles.
- ◆ Accurate pressure fields and “No Tensile Instability”.
- ◆  $\gamma$ SPH is used to solve FSI problems, hypervelocity events and brittle fracture.

The development of the IMPETUS Afea Solver® continues to be focused on three critical ideas:

***Make the software easy to use, provide an accurate solution and improve productivity.***

Runtime options performed by the solver are a key component to all three goals: This includes the ease of changing element order and mesh refinement, built-in meshed components, functions, parameterization, etc. This simplified work-flow leads to reduced turn-around time which is further enhanced by the ease in model setup. The result is a significant increase in productivity.

***The learning curve is flat and so we find that new users are up running very quickly!***



**IMPETUS**  
driving precision