USim
HYPERSONICS

A commercial solution for modeling
ablation and ionization in hypersonic flight!

TECH-X
SIMULATIONS EMPOWERING
YOUR INNOVATIONS

Simulate spacecraft re-entry at hypersonic velocities in engineering time. USim provides fluid algorithms for capturing the multi-species dynamics needed for hypersonic flight modeling, including accelerated turbulence and plasma physics.

Radio Communications Blackout of Re-entry Vehicle
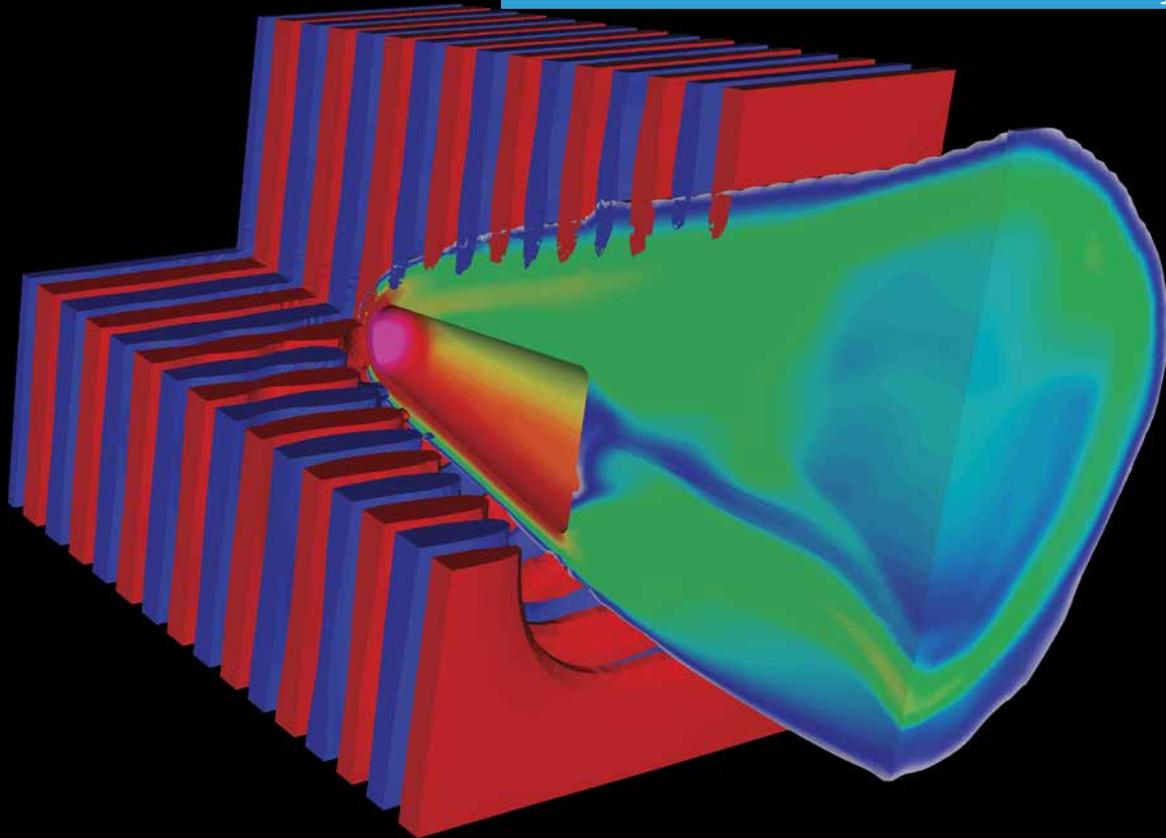
High Accuracy in Record Time

USim simulates hypersonic plasma regimes found in problems such as spacecraft re-entry and hypersonic fighter optimization. Using fluid equations that allow accelerated turbulent viscous fluids, multi-species fluid flow and reaction chemistry, USim captures the most important physics for commercial and defense applications.

USim supports massively parallel computing and scales to tens of thousands of processor cores, enabling solutions to problems that were previously unsolvable.

Choose the Right Package for Your Needs

Need to study radio blackout for your spacecraft? Want to design radio blackout mitigation devices? Combine your USim for Hypersonics package with USim for High Energy Density Plasmas to model interaction of electromagnetic waves with spacecraft!

USim's flexible pricing model allows you to select the amount of physics you need at a cost your purchasing manager will love!

www.txcorp.com

sales@txcorp.com
5621 Arapahoe Ave | Boulder | CO 80303
Telephone: +1-303-448-0727

USim HYPERSONICS

All the Features of USim for Basic Simulations PLUS:

Fast parallel parsing of three-dimensional unstructured grids using the open-standard ExodusII file format from Sandia National Laboratories

Two-equation turbulence models for unstructured meshes

Poisson solvers that can handle linear, non-linear and anisotropic coefficients

Multi-temperature compressible flow

Navier-Stokes equations

Reaction chemistry

Accelerators for time integration
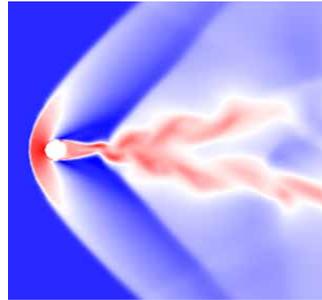
Multiple species

Ideal magnetohydrodynamics

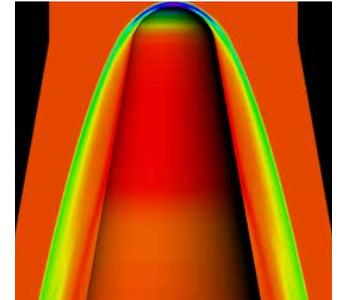Ideal gas equation of state

Real gas equation of state

General equation of state
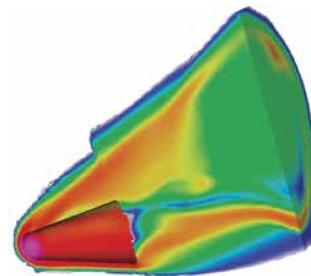
Ideal magnetohydrodynamics
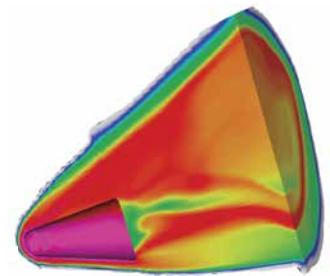
Ideal gas equation of state
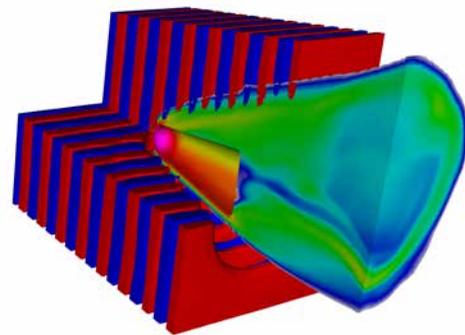
Laminar supersonic flow over cylinder.

RAMC re-entry vehicle with 7 species chemical reactions.

Nitrogen content of plasma around re-entry vehicle.

Plasma temperature around re-entry vehicle.

Radio communications blackout of re-entry vehicle.

About Tech-X Corporation

Tech-X Corporation is committed to technical excellence and innovation. Our scientists and software engineers work together to deliver quantifiable results. We combine academic research with a commercial software company sensibility to deliver high-quality, cutting-edge software that takes advantage of the latest hardware and software advances.

Consulting Services

Tech-X offers consulting and training services for all of its simulation software. In addition to the free support that comes with every purchase of a USim product, we have our experts ready to help you use USim to its full extent possible to solve your most challenging problems.

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