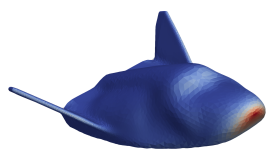


Hypersonic Impact Method for Aerodynamics and Convective Heating (HI-MACH) Software

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Energy, Environment & AerospaceSoftware

Abstract

Solving aerodynamic forces at high speeds is computationally difficult. Most current methods use computational fluid dynamics (CFD), a very complex and slow process, even on supercomputers. The HI-MACH software package allows aerospace engineers to quickly iterate through different designs by providing a 90% accurate solution in 0.01% of the time. HI-MACH doesn't negate the need for final-phase CFD, but in the early design phases, it can significantly decrease iteration time.

What It Is

A software package that solves aerodynamic forces at extreme speeds.

Value Proposition

HI-MACH provides a 90% fidelity response in 0.01% of the time required by concurrent CFD methods.

Applicable Markets

Aerospace engineering, Space Vehicle Design & Manufacturing, Military Aircraft & Aerospace Manufacturing, Uncrewed Aerial Vehicle Manufacturing, and Aircraft Engine & Parts Manufacturing.

Benefit

In aerospace design, engineers currently use full computational fluid dynamics (CFD) simulations to evaluate high-level concepts before refining lower-level designs. This process is slow and computationally intensive and demands significant power and time.

HI-MACH uses high-speed trends and simplified models to calculate a 90% accurate solution in 0.01% of the time required by standard CFD. While it doesn't eliminate the need for final-phase CFD verification, HI-MACH enables rapid, cost-effective design iterations at the start of a project.

This quickened process saves money, time, computing power, and electricity.

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Intellectual Property

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