



University Of Texas At Arlington And Ansys Accelerate High-Speed Hypersonics Research And Development

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New collaboration aims to save hundreds of millions of dollars in hypersonic aircraft, spacecraft and missile prototype testing

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Key Highlights

- The University of Texas at Arlington (UTA) and Ansys are providing a cutting-edge design and analysis workflow for validating system models in the U.S. government's current and next-generation hypersonic vehicles
- The workflow will verify Ansys' software code fidelity by conducting physical high-speed flight tests in UTA's state-of-the-art arc jet hypersonic wind tunnel

The [University of Texas at Arlington \(UTA\)](#) and [Ansys](#) (NASDAQ: ANSS) are developing an advanced design and analysis workflow for validating system models in the U.S. government's current and next-generation hypersonic vehicles. The workflow will fast-track certification of simulation software codes, help decrease hypersonic technology development spending and increase engineering productivity.

The U.S. Department of Defense and NASA have prioritized the development of high-speed hypersonic aircraft, spacecraft and missiles. However, funding may not be sustainable as a single prototype flight test costs taxpayers as much as \$100 million dollars. Additionally, there is a shortage of engineers with hypersonic vehicle design experience. While these factors have slowed the advancement of hypersonic flight, Ansys' simulation solutions help spur the development of key hypersonic technologies ranging from thermal protection systems for spacecraft reentry to scramjet combustion technology for hypersonic travel.

Ansys' high-fidelity physics-based solvers spur hypersonics experimental research — from simulating the design and analysis of air and fuel mixing inside a scramjet to measuring the impact of thermal stresses on vehicle sensors that operate in harsh environments. By simulating these systems, engineering teams can save hundreds of millions of dollars in physical prototype testing and further research and development using fewer employees. After running Ansys' hypersonic systems models, UTA engineers can verify the software code's accuracy by conducting physical high-speed flight tests in UTA's state-of-the-art arc jet hypersonic wind tunnel — the only structure of its kind created by a U.S. university.

"Testing and validating physics-based component models within a wind tunnel that operates at hypersonic speeds and temperatures delivers a major technological advantage for our mutual customers, driving faster development of cost-effective solutions," said Luca Maddalena, professor of Aerospace Engineering and director of the UTA's Aerodynamics Research Center. "The university's arc jet will help validate Ansys' software codes for hypersonic applications and power leading-edge research in aerothermodynamics, scramjet propulsion, ablation and much more."

"Our mutual customers in the air and space domains demand substantial reductions in time to market, which creates tremendous challenges for engineering highly complex hypersonic vehicles," said Prith Banerjee, chief technology officer at Ansys. "By working closely with one of the top universities in hypersonics research, our combined capabilities will shift the paradigm away from expensive and lengthy physical prototype testing to significantly advance the development of current and future hypersonic vehicles."

About Ansys

If you've ever seen a rocket launch, flown on an airplane, driven a car, used a computer, touched a mobile device, crossed a bridge or put on wearable technology, chances are you've used a product where Ansys software played a critical role in its creation. Ansys is the global leader in engineering simulation. Through our strategy of Pervasive Engineering Simulation, we help the world's most innovative companies deliver radically better products to their customers. By offering the best and broadest portfolio of engineering simulation software, we help them solve the most complex design challenges and create products limited only by imagination. Founded in 1970, Ansys is headquartered south of Pittsburgh, Pennsylvania, U.S.A. Visit www.ansys.com for more information.

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