



NASA-backed Program Selects Ansys Simulation Technology to Help Validate Pioneering Research on Aviation Sustainability

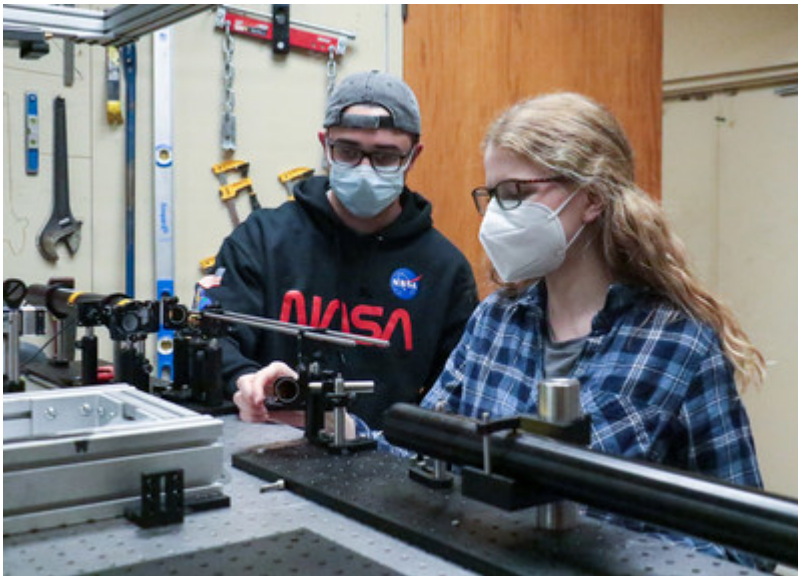
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In a five-year project, the University of Central Florida (UCF) will implement Ansys' industry-leading simulation to analyze, test, and qualify the use of ammonia as an alternate fuel to power zero-carbon jet engines

/ Key Highlights

- Ansys' simulation tools will enable researchers to validate the use of liquid ammonia (NH₃) as an alternate, more sustainable fuel for aircraft
- The collaboration will support, and potentially surpass, the worldwide aviation industry goal to reach near-zero emissions by 2050
- The simulation-powered research is poised to transform the aviation industry with an alternative fuel that would produce zero-carbon emissions

PITTSBURGH, Aug. 1, 2022 /PRNewswire/ -- [Ansys](#) (NASDAQ: ANSS) will support research led by the University of Central Florida (UCF) and funded by a \$10 million NASA University Leadership Initiative five-year grant to accelerate aviation sustainability. The project aims to develop zero-carbon jet engines using liquid ammonia (NH₃) as an alternate, more sustainable fuel for aircraft. Ansys' simulation solutions will be used as a key enabler of the project to both validate the use of ammonia and achieve the outcome within the desired timeline.



By integrating Ansys' chemical kinetics and computational fluid dynamics (CFD) simulation tools, [Ansys Chemkin-Pro](#) and [Ansys@Fluent®](#), researchers will simulate complex, chemical reaction systems surrounding ammonia, including the vaporization of liquid ammonia inside heat exchange tubes, heat transfer, and the combustion of ammonia and hydrogen in the air. The goal is to use ammonia as a main hydrogen carrier by inducing chemical catalysis to leverage ammonia's hydrogen components while only releasing safe emissions into the air.

"We want to create a scalable solution for cleaner aviation and with Ansys' cooperation we will get there faster," said Jay Kapat, the lead investigator of the project and an engineering professor at UCF. He is an expert in his field and leads the Center for Advanced Turbomachinery and Energy Research at UCF. "We would not be able to authenticate the use of liquid ammonia as a reliable and alternate fuel without the sophistication and capability of Ansys' fluids simulation tools."

In addition to the sustainability of ammonia, it is naturally liquid at high altitudes, easier to handle than hydrogen, and does not require additional storage. In contrast, hydrogen requires special handling at high altitudes, thermal management, and ample on-board cryogenic storage.

"Simulation is reshaping a cleaner future in many industries, and today we applaud its continued impact on aviation with this exciting new project made possible by UCF and NASA. Simulation enables companies to save resources, energy and emissions before products are ever built; and build more energy-efficient products and processes that have far-reaching sustainability impacts," said Prith Banerjee, chief technology officer at Ansys and executive sponsor of Ansys' Academic and Sustainability Programs. "Through simulation, Ansys provides the predictive certainty to realize our customers' vision for a sustainable future and model interactions that we otherwise could not analyze, such as chemical reactions. We look forward to playing a role in developing groundbreaking sustainable aviation fuel options."

/ About Ansys

When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality with Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push boundaries by using the predictive power of simulation. From sustainable transportation to advanced semiconductors, from satellite systems to life-saving medical devices, the next great leaps in human advancement will be powered by Ansys.

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