



EXFAN

NOVEL RECUPERATION SYSTEM TO MAXIMIZE
EXERGY FROM ANERGY FOR FUEL CELL POWERED
GEARED ELECTRIC AIRCRAFT PROPULSION SYSTEM



VIENNA AVIATION DAYS 2024: PIONEERING CLIMATE NEUTRAL AVIATION

Under the theme “Hydrogen/Hybrid Electric Propulsion Systems as Key to Climate Neutral Emissions,” leading experts from the aviation industry, academia, research institutions, and representatives from project sponsors, ministries, and the EU Commission gathered to exchange the latest scientific findings and advancements in hydrogen technologies for aviation.

Hanns Amri from Advanced Drivetrain Technologies (ADT) opened and moderated the event. In their welcoming remarks, Prof. Jens Schneider, Rector of TU Wien, Prof. Michael Weigand, Head of the Machine Elements and Aircraft Transmissions Research Unit, and Prof. Martin Berens, Head of the Aircraft Systems Research Group, underscored the importance of reducing aviation emissions and highlighted the significant contributions of TU Wien through various research projects.

SESSION HIGHLIGHTS

Day One: Policy Strategies and Technical Challenges in Hydrogen Aviation

Public Sector Strategies and Challenges

The first session addressed the public sector's strategies and challenges in implementing liquid hydrogen-based propulsion systems for aircraft. Speakers included Michail Kyriakopoulos, Janik Fernandez, Ingrid Kernstock, Kai Wagner, and Ron van Manen, who provided insights into European and national funding opportunities. A panel discussion followed, delving into the progress and hurdles in this field.

Technical Opportunities and Challenges

The second session focused on the technical aspects of transitioning to hydrogen-based aviation propulsion. Key topics included the regulation and reduction of emissions (non-CO₂, contrails, and noise) and the adaptation of ground infrastructure. Industry representatives shared their advancements, and the session concluded with networking opportunities over food and drink, accompanied by stunning views of the Vienna skyline.

Day Two: In-Depth Presentations and Innovative Solutions

The second day began with presentations on hydrogen-electric propulsion systems, covering topics from low-temperature PEM fuel cells to hydrogen combustion. Over ten Horizon Europe and Clean Aviation projects were showcased, all aimed at contributing to sustainable aviation.

The event concluded with a block of presentations on energy storage solutions. Discussions included modeling storage architectures for liquid hydrogen, on-board LH₂ storage, fuel distribution systems, and refueling processes for hydrogen stored at -253°C. Various innovative solutions for utilizing liquid hydrogen in aircraft were explored.



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Conclusion

The Vienna Aviation Days were organized by the European research project exFan, hosted by the Aircraft Systems Research Group at TU Wien, and powered by Advanced Drivetrain Technologies (ADT). This event provided a valuable platform for sharing knowledge and fostering collaboration among key stakeholders in the journey towards zero-emission aviation.

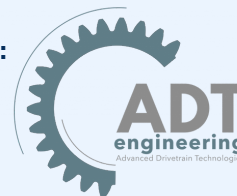


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