

Sustainable Aviation Research

Univ. Prof. Dipl.-Ing. Dr.-Ing. Martin Berens

BMIMI Endowed Professorship for
Innovative Aviation Technologies
Aircraft Systems Research Group



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Institute of Powertrain
& Automotive Technology



supported by the Austrian
Aviation Programme TAKE OFF

 Federal Ministry
Innovation, Mobility
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Republic of Austria



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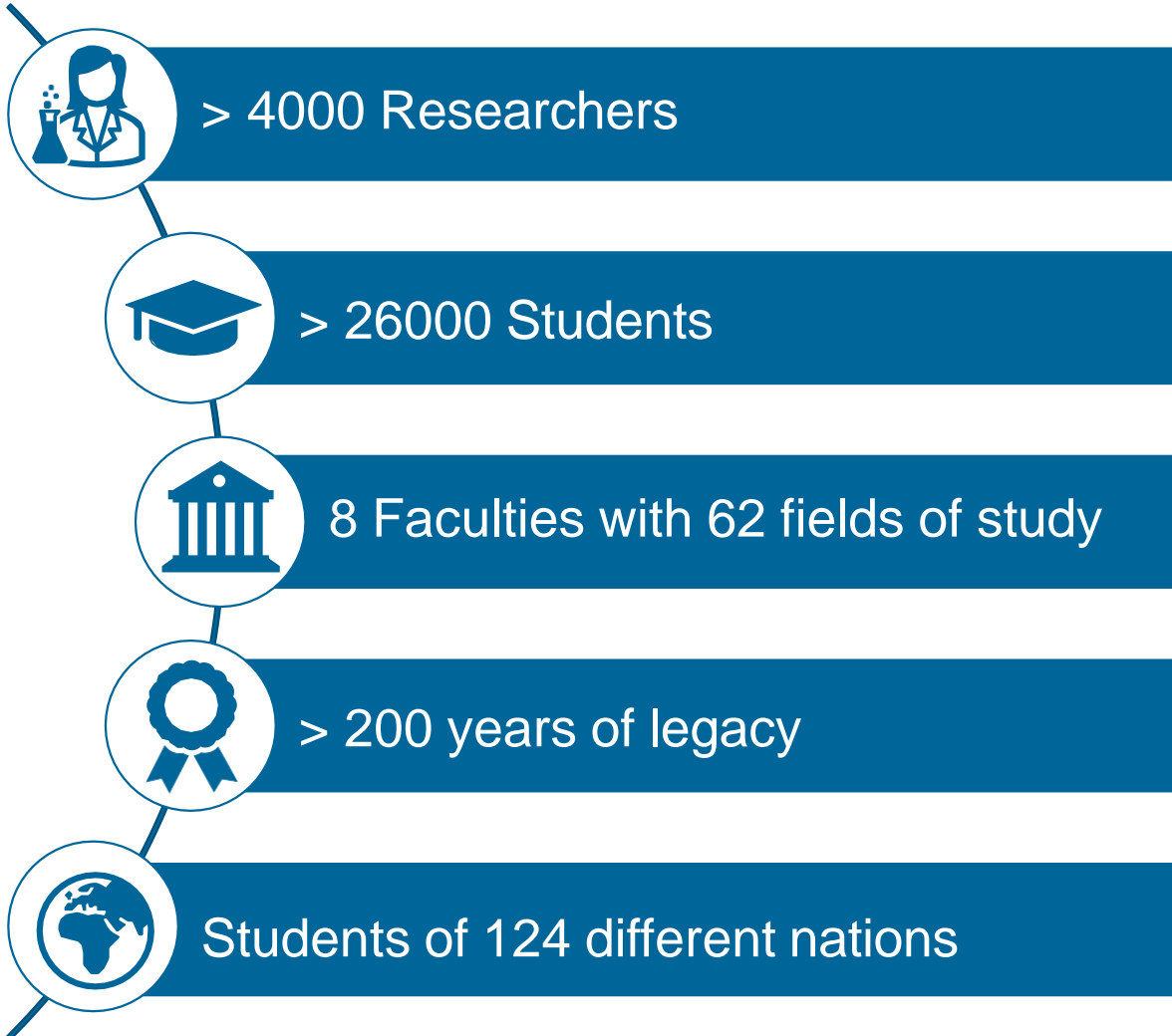












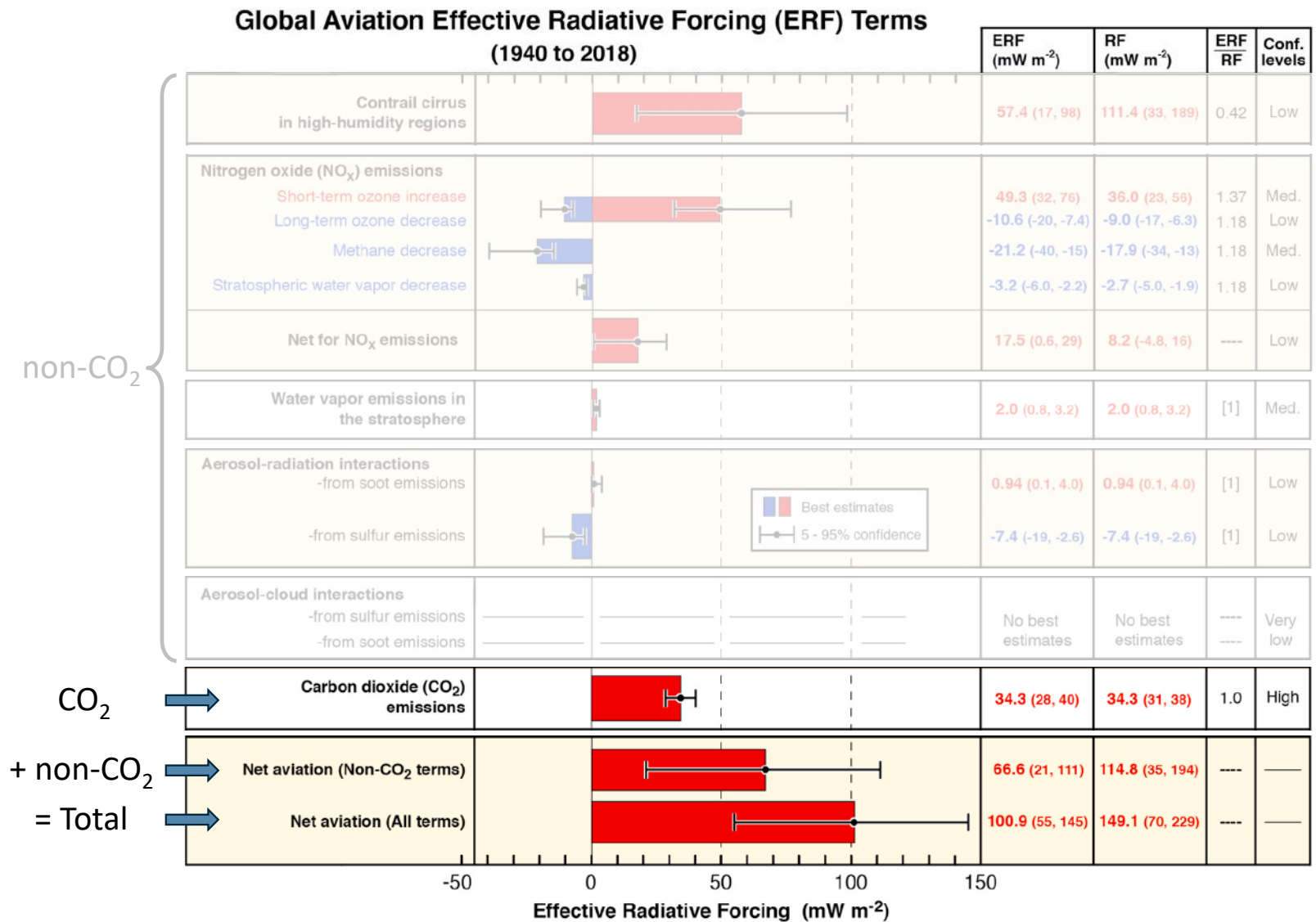
Nobel laureate Ferenc Krausz @ TU Wien

Aviation and Global Warming

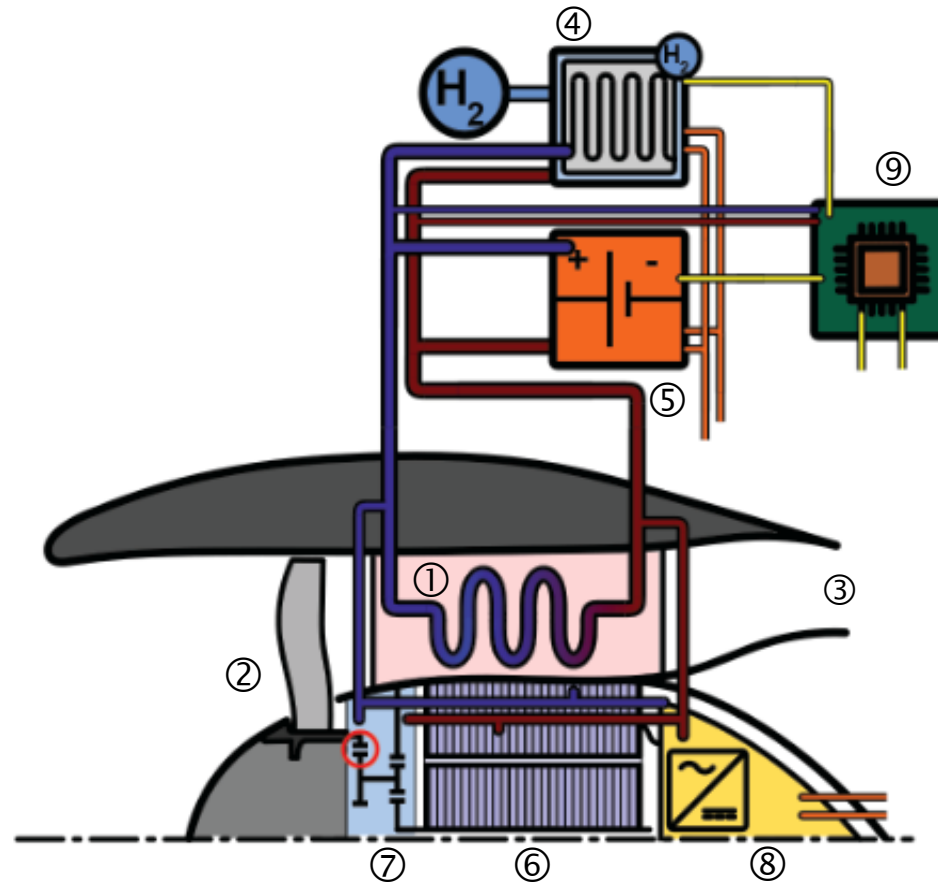


SOURCE: [HTTPS://SCIED.UCAR.EDU/IMAGE/MULTIPLE-CONTRAILS](https://scied.ucar.edu/image/multiple-contrails)

Aviation non-CO₂ emissions have a greater effect on global warming than CO₂!



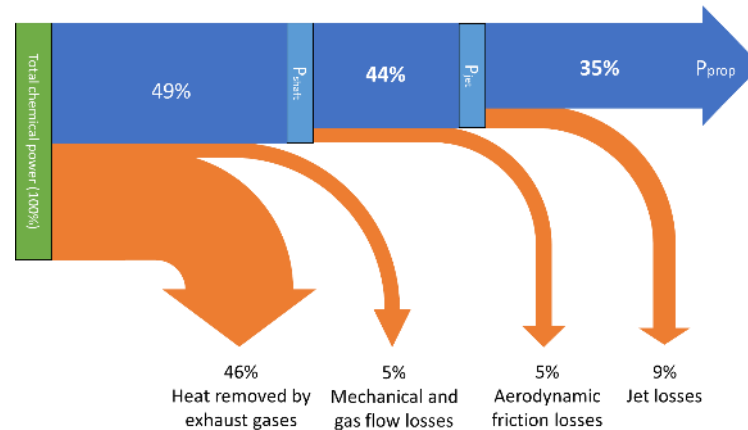
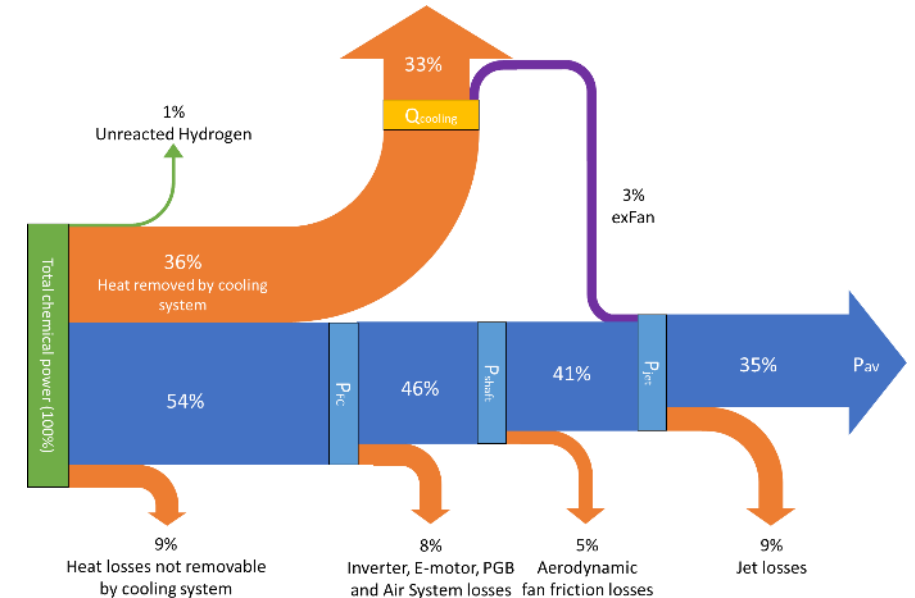
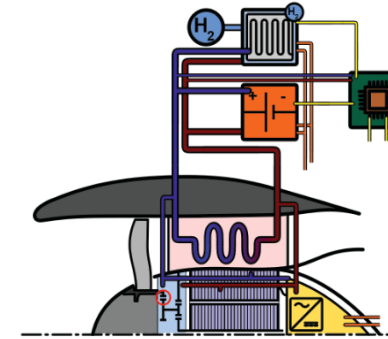
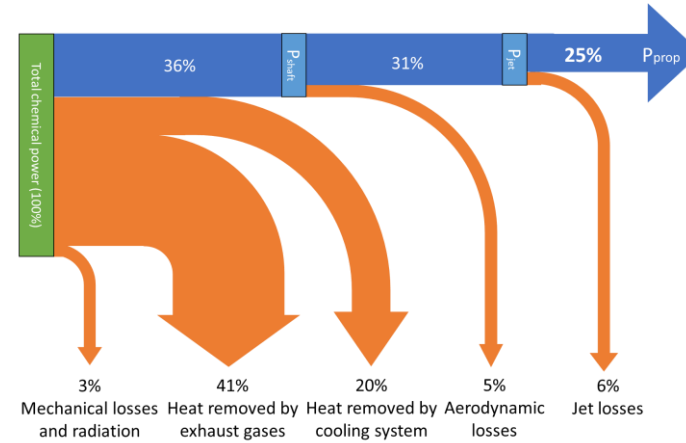
SOURCE: LEE, D. S.; FAHEY, D. W.; SKOWRON, A.; ALLEN, M. R.; BURKHARDT, U.; CHEN, Q. ET AL. (2021): THE CONTRIBUTION OF GLOBAL AVIATION TO ANTHROPOGENIC CLIMATE FORCING FOR 2000 TO 2018 (244)**



- ① Heat Exchanger (HX)
- ② Fan stage
- ③ Variable area nozzle
- ④ Fuel cell
- ⑤ Battery
- ⑥ Electric motor
- ⑦ Gearbox
- ⑧ Power electronics
- ⑨ Controller



Funded by
the European Union



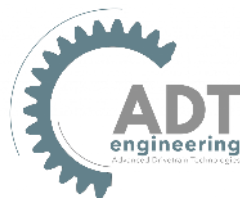


Acknowledgements

Project Coordinator



Technical Coordinator



Research Coordinator



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Project Partners





Hybrid Technology & Sustainable Fuels

Alternative Propulsion Systems

Vehicle Systems and Components

Sustainability

Technological Openness for Mobility Solutions

SAF Air Lab: Measurement Setup

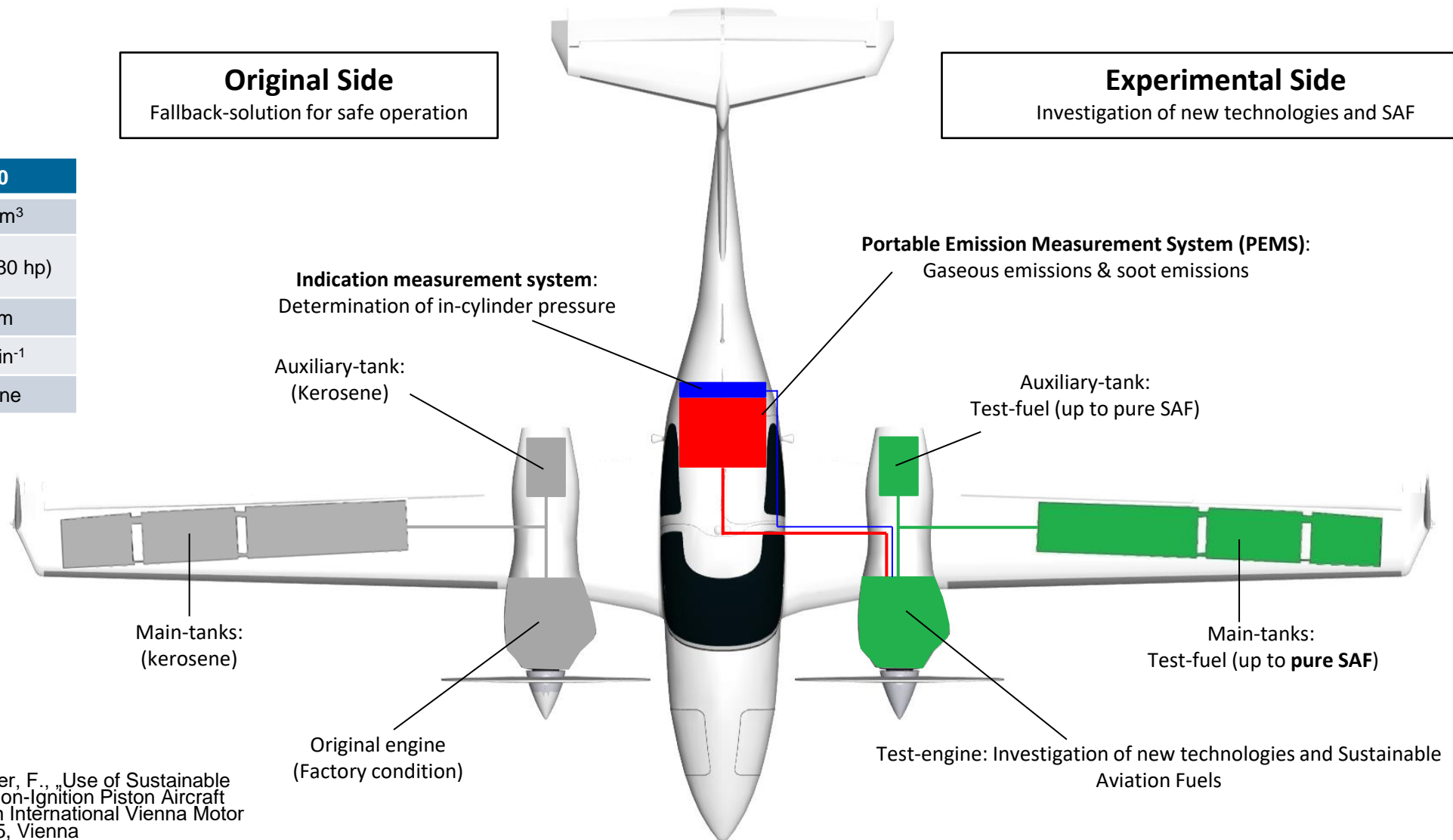
Original Side

Fallback-solution for safe operation

Experimental Side

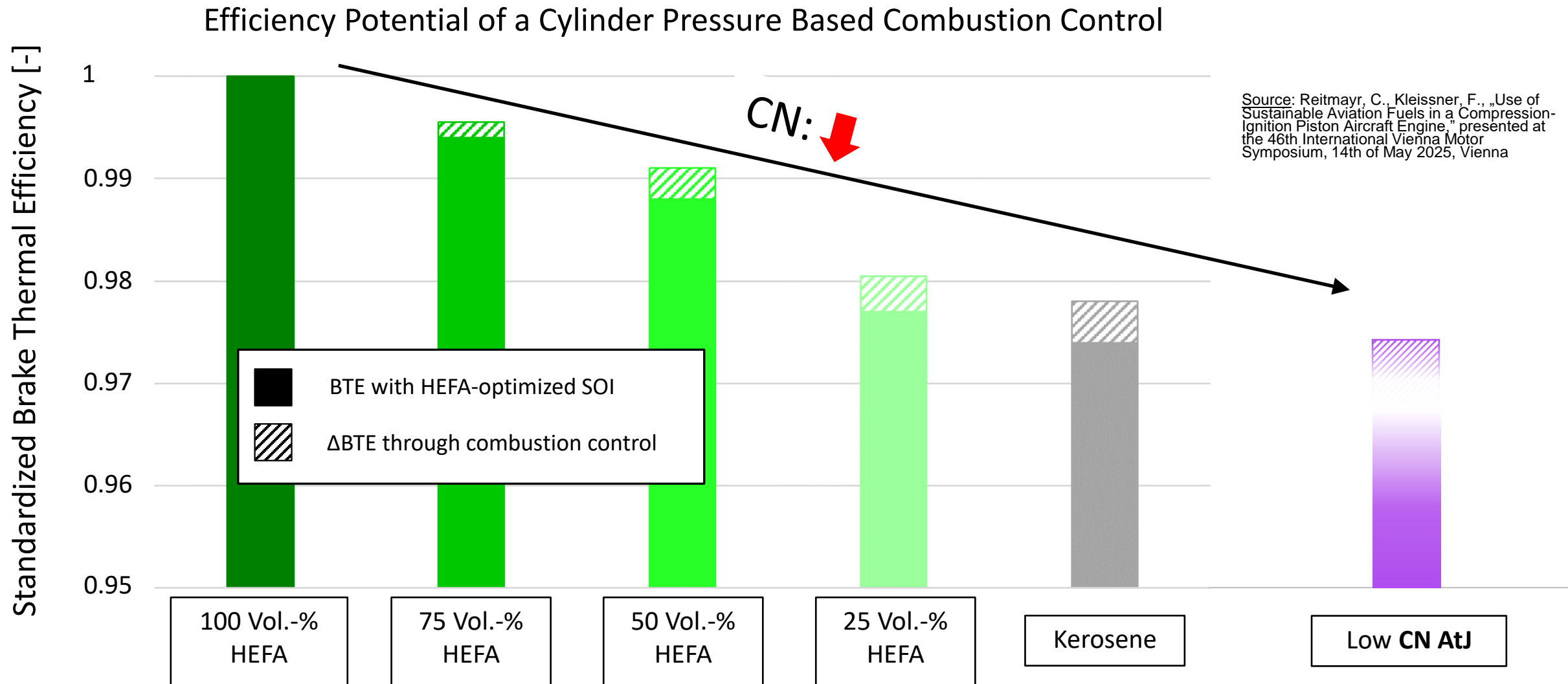
Investigation of new technologies and SAF

Specifications	AE330
Displacement	1,991 cm ³
Max. take off power	132 kW (180 hp)
Max. torque	325 Nm
Max. RPM	3887 min ⁻¹
Fuel	Kerosene



Source: Reitmayr, C., Kleissner, F., „Use of Sustainable Aviation Fuels in a Compression-Ignition Piston Aircraft Engine,” presented at the 46th International Vienna Motor Symposium, 14th of May 2025, Vienna

SAF Air Lab: Experimental Results



The presented achievements were obtained in the research project “SAF Air Lab”.
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