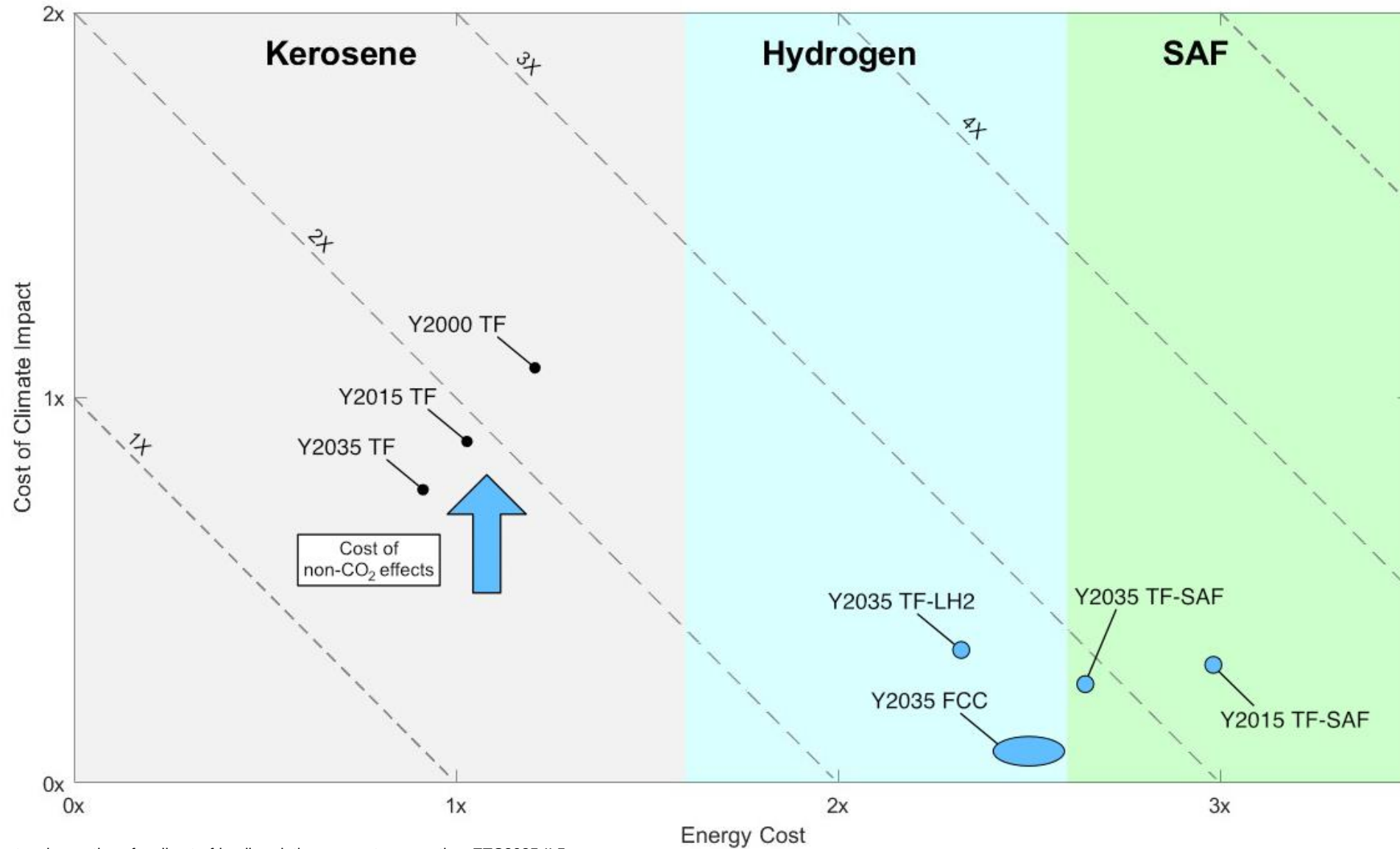


Experiments in SAF Combustion

Robert Krewinkel

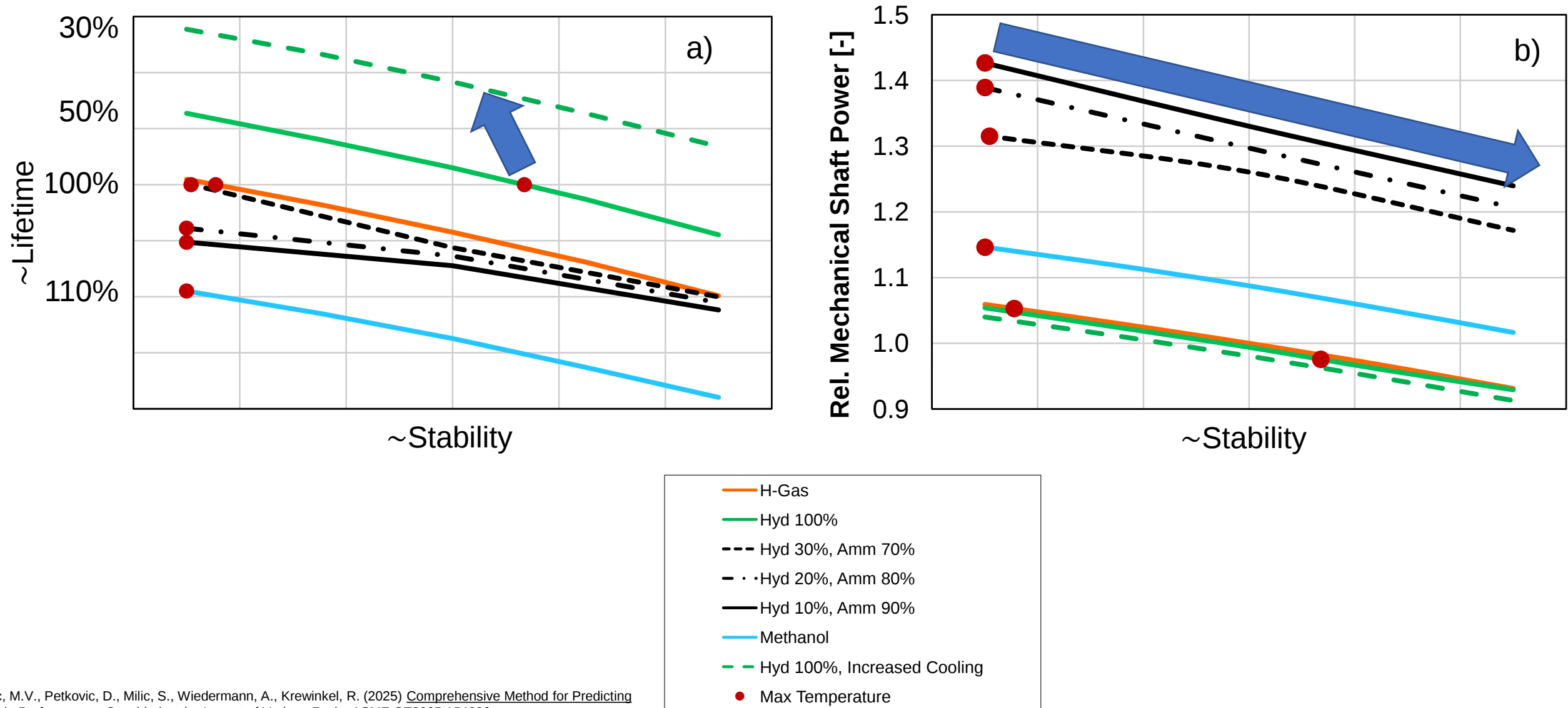
Wiener Neustadt,
26/05/2025



After: Frohwein, J. (2025) [Propulsion system innovations for climate-friendly aviation – a cost perspective](#). ETC2025-IL5

Burning H₂ and Its Carriers

3



Source: Petrovic, M.V., Petkovic, D., Milic, S., Wiedermann, A., Krewinkel, R. (2025) Comprehensive Method for Predicting Gas Turbine Cycle Performances Considering the Impact of Various Fuels, ASME GT2025-154023

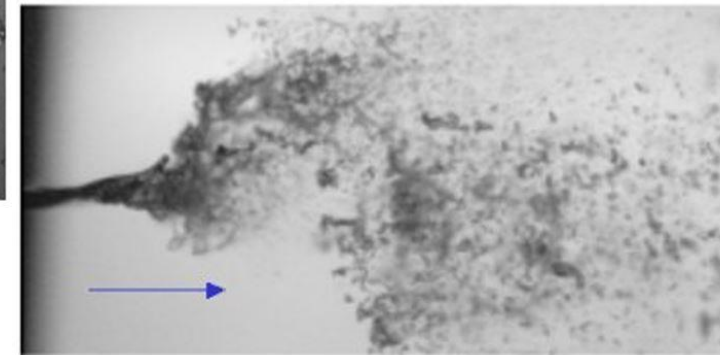
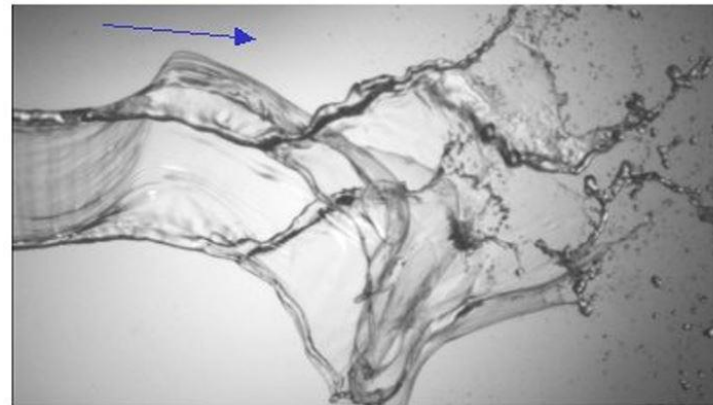
Emissions are driven by atomization:

- Viscosity of the fuel
- Surface tension
- Pressure



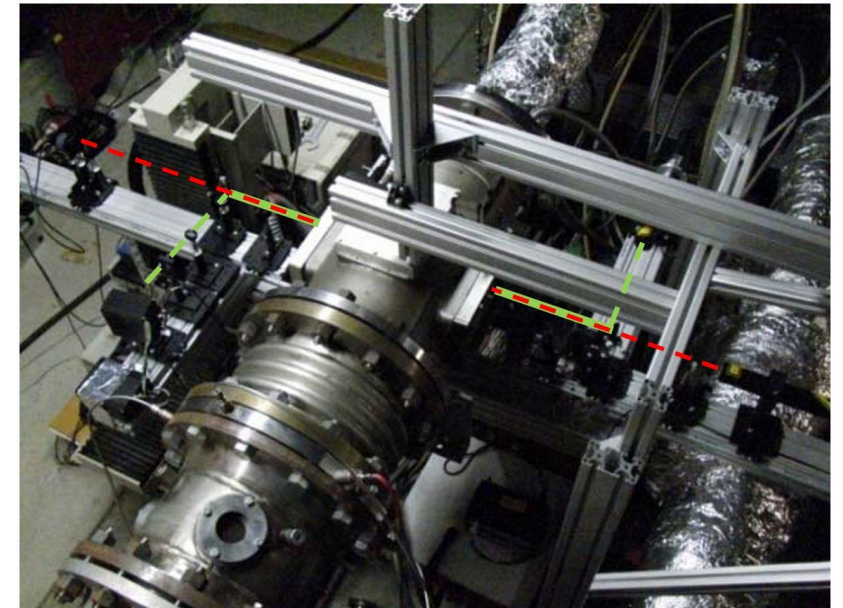
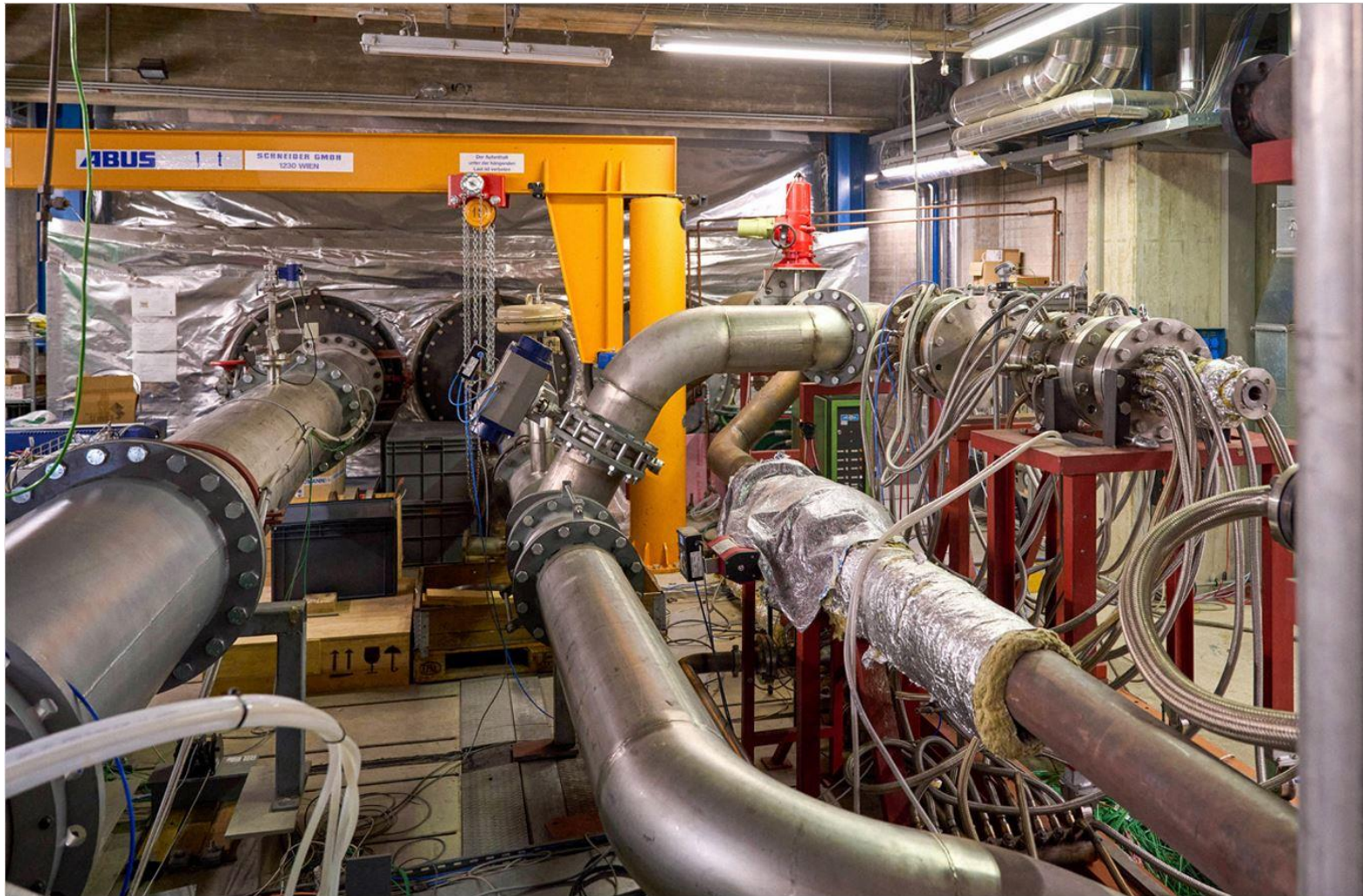
As well as evaporation:

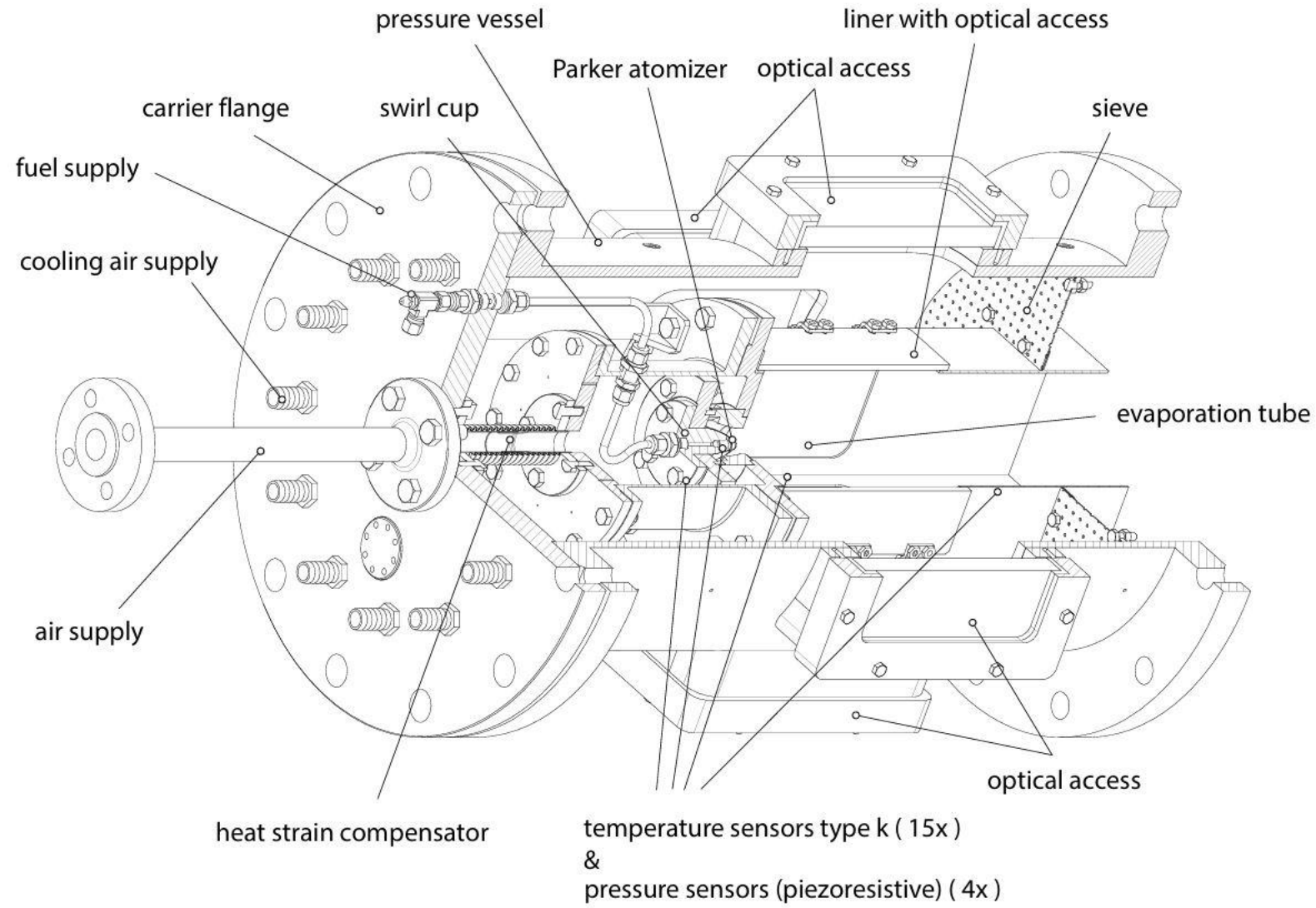
- Temperature of the ambient
- Pressure of the ambient

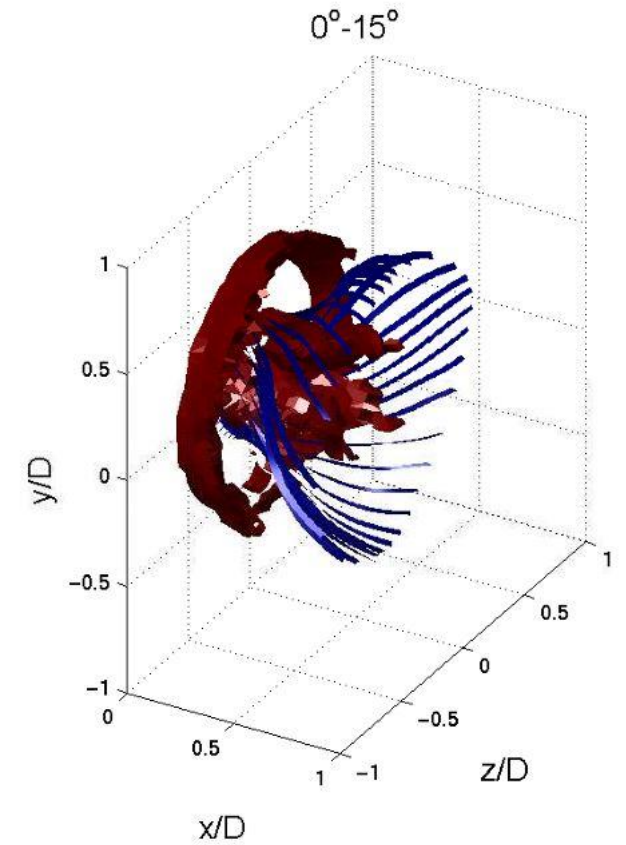
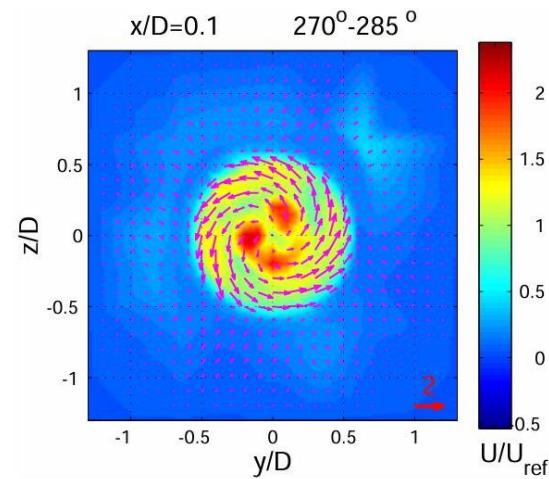
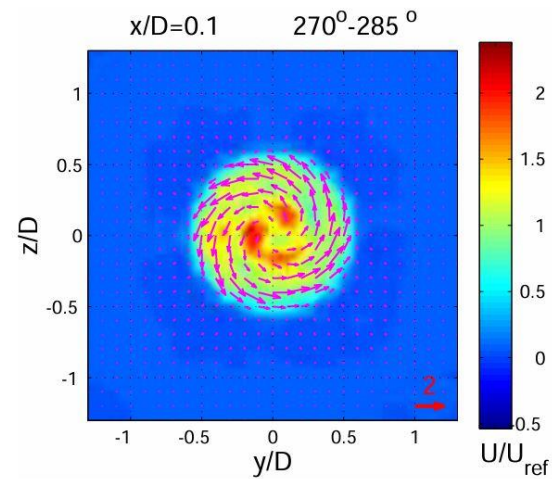
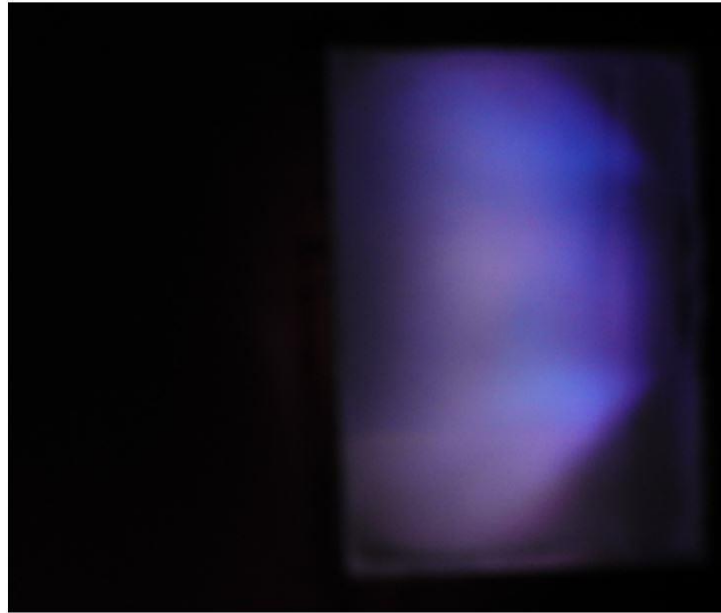


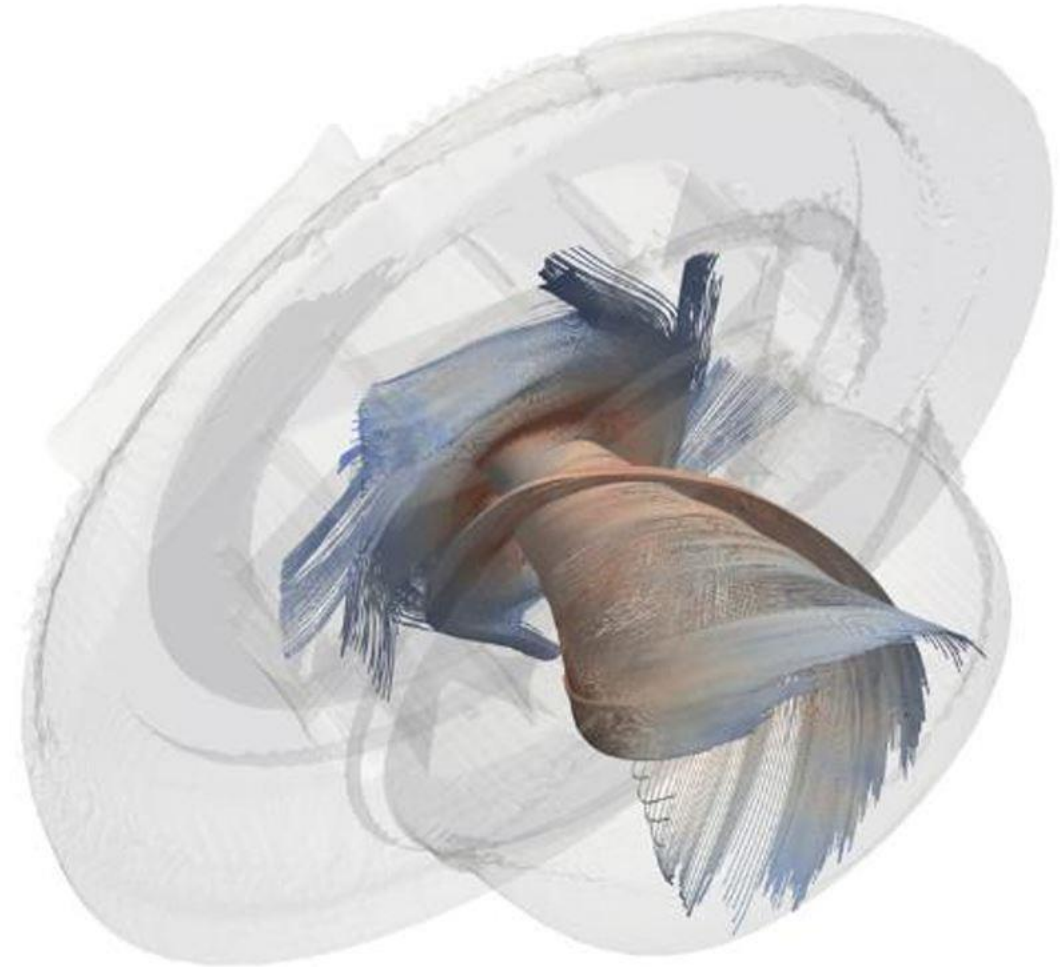
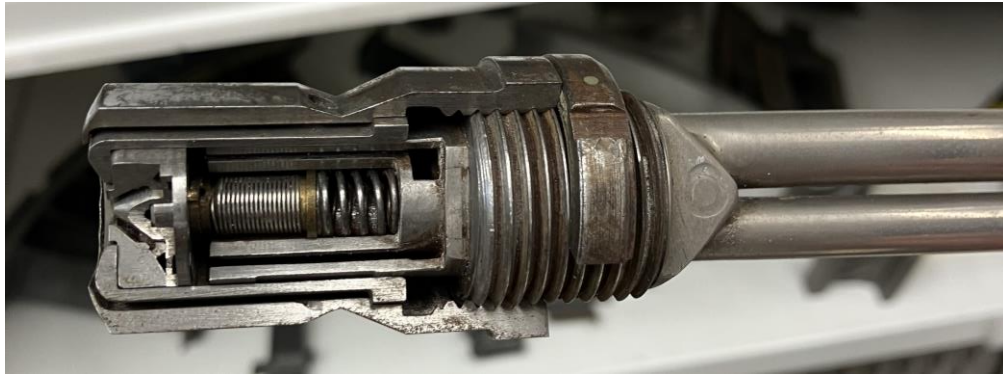
The ITTM Test Rig

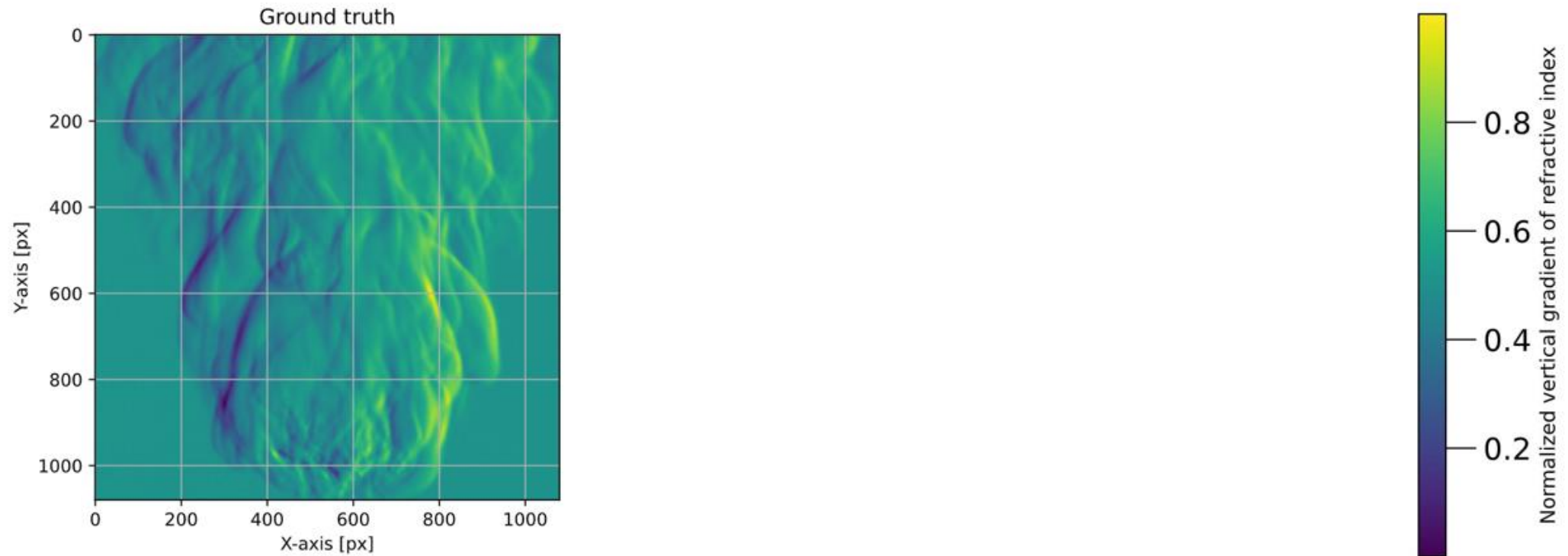
5











Source: Tasamany, S. et al. (2025) Reconstruction of Refractive Index Gradients in a Reactive Turbulent Flow Based on U-Net Supervised Reconstruction Towards the Investigation of Thermoacoustic Oscillations, SPIE

Hydrogen-based fuels are more cost-effective than SAFs, but require major adaptations in the engine infrastructure.

The combustion characteristics heavily depend on the boundary conditions.

New developments hold great promise for more detailed and accelerated development of SAF combustion systems.