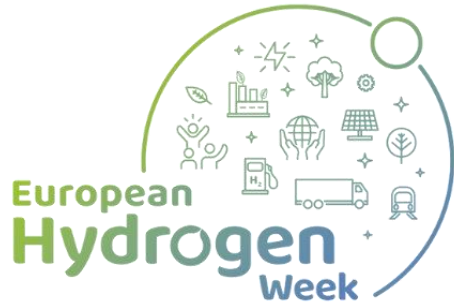




## Hydrogen technologies on TUKE



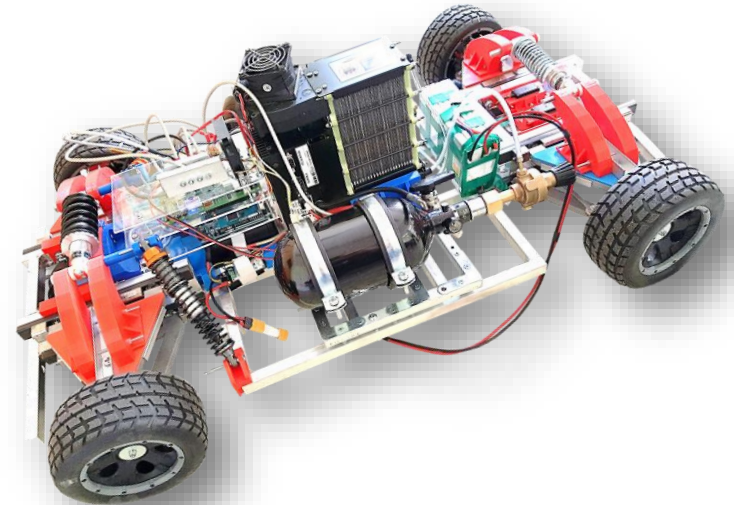
European Hydrogen Week 2024  
GREENET Pitch session  
TechForum, 19th November 2024





# Basic information & Contact

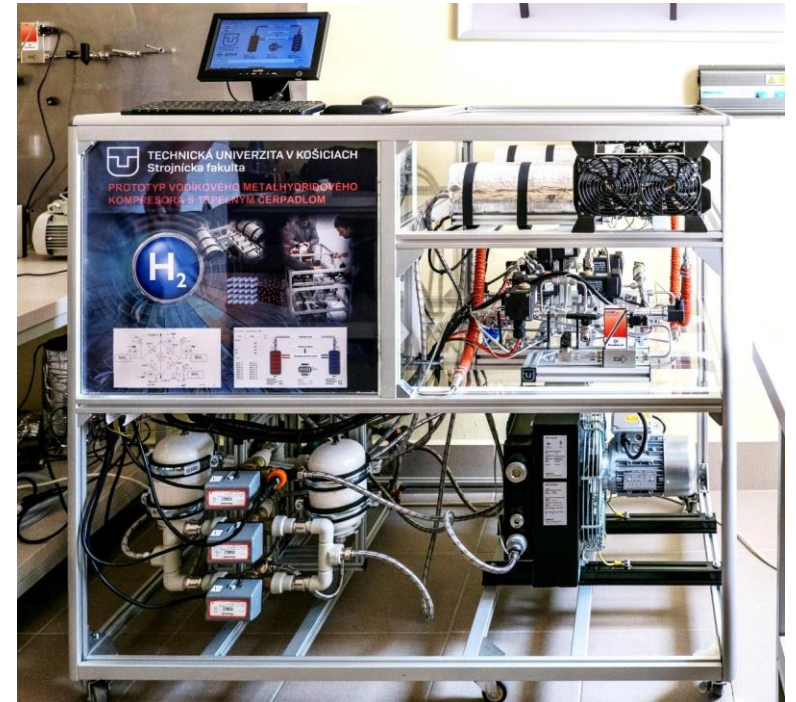
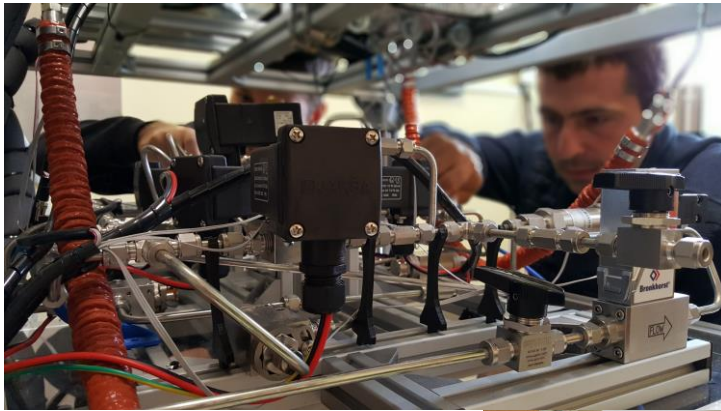
- prof. Ing. Tomáš Brestovič, PhD.
- Technical University of Košice, Faculty of Mechanical Engineering
- R&D: Hydrogen storage in metal hydrides; H<sub>2</sub> compression with MH; Transport
- Beneficiary of project ID 101192335, EASTGATEH2V, Small-scale Hydrogen Valley  
HORIZON-JTI-CLEANH2-2024-06-02
- Slovakia, Košice
  
- Contact:
  - [tomas.brestovic@tuke.sk](mailto:tomas.brestovic@tuke.sk)
  - [www.sjf.tuke.sk/EN/](http://www.sjf.tuke.sk/EN/)





# Our experience: Metal hydride compressor

## Safe hydrogen compression without moving parts



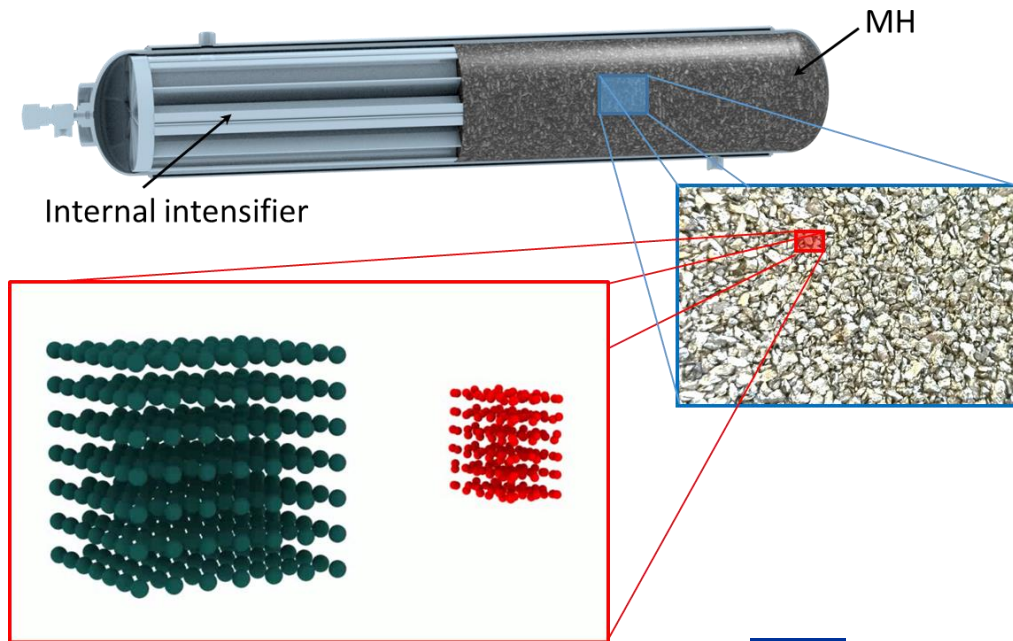
- Fully autonomous control.
- Compression ratio: 4
- Possible to test new type of MH materials and total efficiency





# Metal hydride vessels

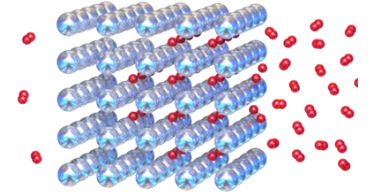
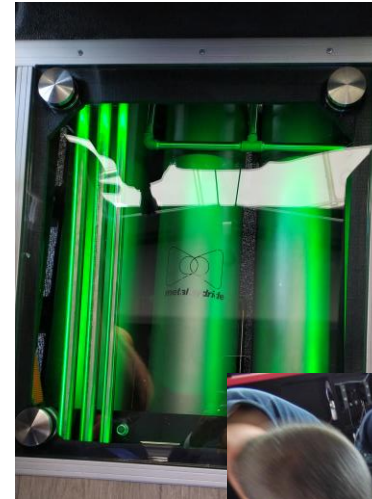
## Production of a certified metal hydride vessels (Standard EN 13322)





# Low-pressure hydrogen bus

Bus with implemented technology of hydrogen storage in metal hydrides



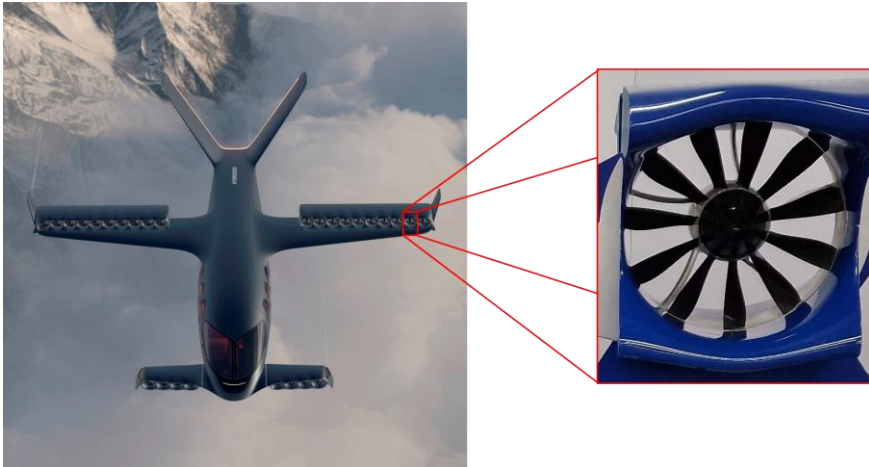
- Range: 180 km
- Hydrogen capacity: 5kg
- Number of passengers: 25





# Use of hydrogen in the aviation industry

## Prototype of hydrogen propulsion for an electric aircraft engine



- Range: 1180 km
- Number of engines: 28
- Number of passengers: 6





Technical University of Košice  
Faculty of Mechanical Engineering



Thank you for your attention

Tomáš Brestovič

Vicedean for innovation, technology transfer and internal relations

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