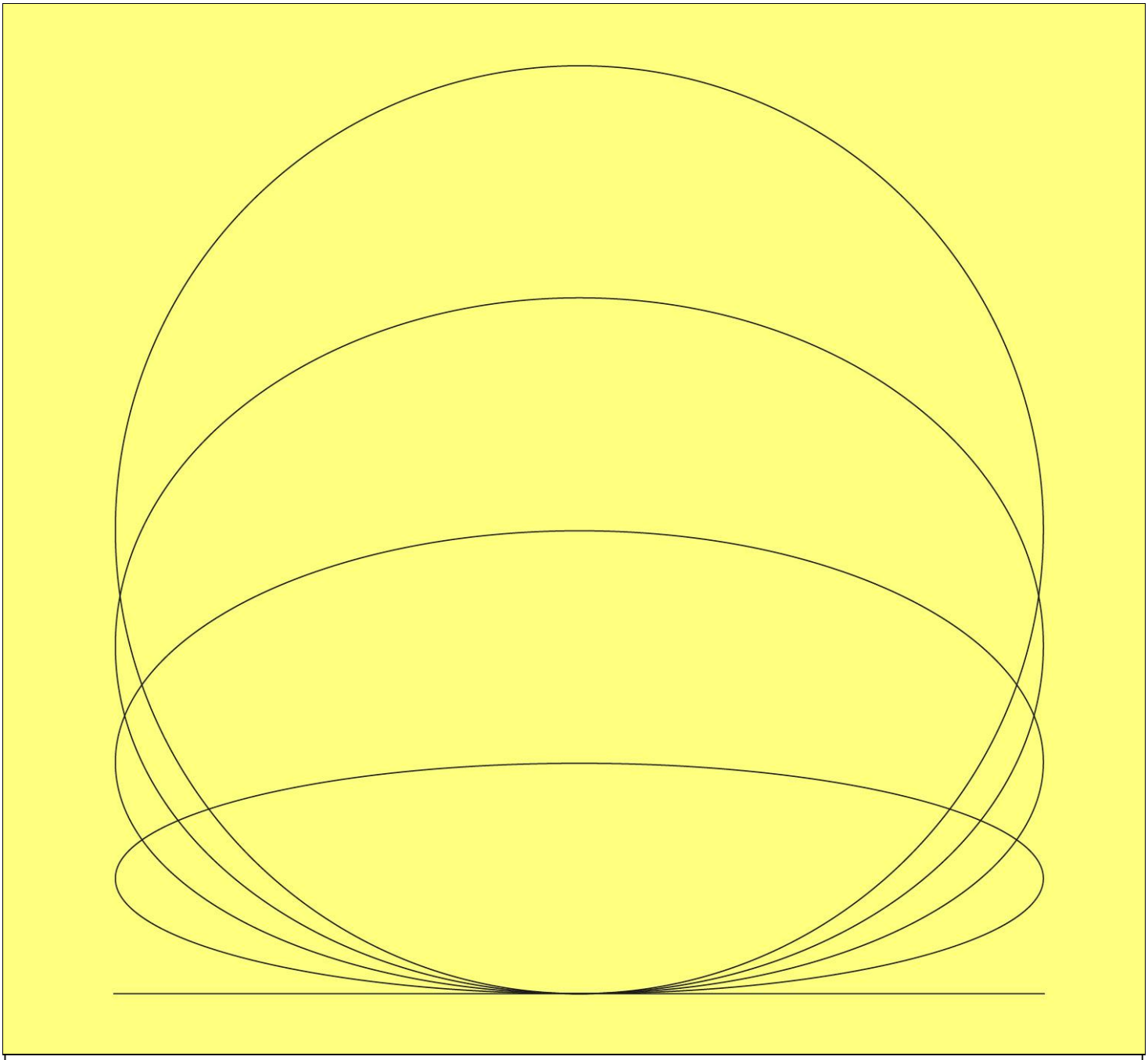

H2UpClose #7: MANN+HUMMEL

Inside the Minds Driving Hydrogen Innovation

Version: 1.0
YYYY–MM–DD
HORIZON-JTI-CLEANH2-2024-03-02

H2UpScale

Clean Hydrogen Partnership

Co-funded by the European Union

H2UpClose #7: MANN+HUMMEL

H2UpScale Project is happy to present the H2UpClose interviews' cycle.
Below the seventh interview with MANN+HUMMEL.

In one sentence, what problem are you obsessed with solving in this project?
We are focused on removing a major - and often overlooked - scalability bottleneck of proton exchange membrane (PEM) fuel cells by redesigning key Balance-of-Plant components so high-power fuel cell systems can scale efficiently, reliably, and economically.

Finish this: "If we get this thing right, _____ will change for _____."
If we get this right, the scalability of PEM fuel cell systems will advance significantly, enabling system integrators to deploy high-power applications - from heavy duty, to marine vessels and to aviation platforms - that previously seemed out of reach.

What's the most surprising thing people get wrong about Fuel Cells' upscaling?
The most surprising misconception is that scaling fuel cell systems is primarily about improving the stack, while in reality the Balance of Plant components drive system efficiency, reliability, and durability.

What's the "before vs after" story?
Before: Balance-of-plant components are typically designed for applications up to about 200 kW limiting the range of applications.

After: Newly developed Balance-of-Plant components will enable applications up to 1050 kW opening the door to use in heavy duty, marine and aviation applications.

Why does solving this problem matter now and not in five years?
Sectors such as heavy duty, marine and aviation urgently need scalable, zero-emission solutions to meet tightening global decarbonization targets.

For these 'hard-to-abate' sectors, high-power fuel cell systems are a promising answer, but they can only be deployed when the supporting Balance-of-Plant components are ready. Developing them now is essential to ensure industry-wide adoption within the next investment cycles for next-generation vessels, aircraft, and heavy-duty applications.

What is your role and what are your goals in the project?
Our role is to lead the development and validation of the cathode air path subsystem. Together with the H2UpScale partners, we ensure that the air supply to the PEM fuel cell stack is efficient, robust, and scalable for high-power applications.

Our goals are to:
- Humidifier: a novel and innovative design offering facilitated upscaling, footprint and weight reduction and increased robustness.
- Water separators: Evaluation of advanced concepts and development scaled-up solutions and system integration.
- Cathode Air Filter: Modular and scalable design allowing different kinds of high-power applications.
- Ion Exchange Filter: Contributing to a 20 % increase of the durability of cooling system.
- Resonator: assessment of reducing noise potential for scaled-up and integrated BoPs of the air path to improve user acceptance level for the H2UpScale solutions.

What added value does your activity bring?

Working closely within a diverse consortium allows us to optimize components with full system-level understanding, rather than designing them in isolation. The added value is not only better components, it's the opportunity to shape the future architecture of high-power fuel cell systems.

Where can people follow progress or get involved right now?

People can follow progress and get involved by visiting the H2 Upscale project website, connecting with consortium partners on LinkedIn, or subscribing to project updates and newsletters shared by the participating organizations.

Website: www.h2upscale.eu
LinkedIn: https://www.linkedin.com/company/h2upscale

Acknowledgement

The project is supported by the Clean Hydrogen Partnership and its members.