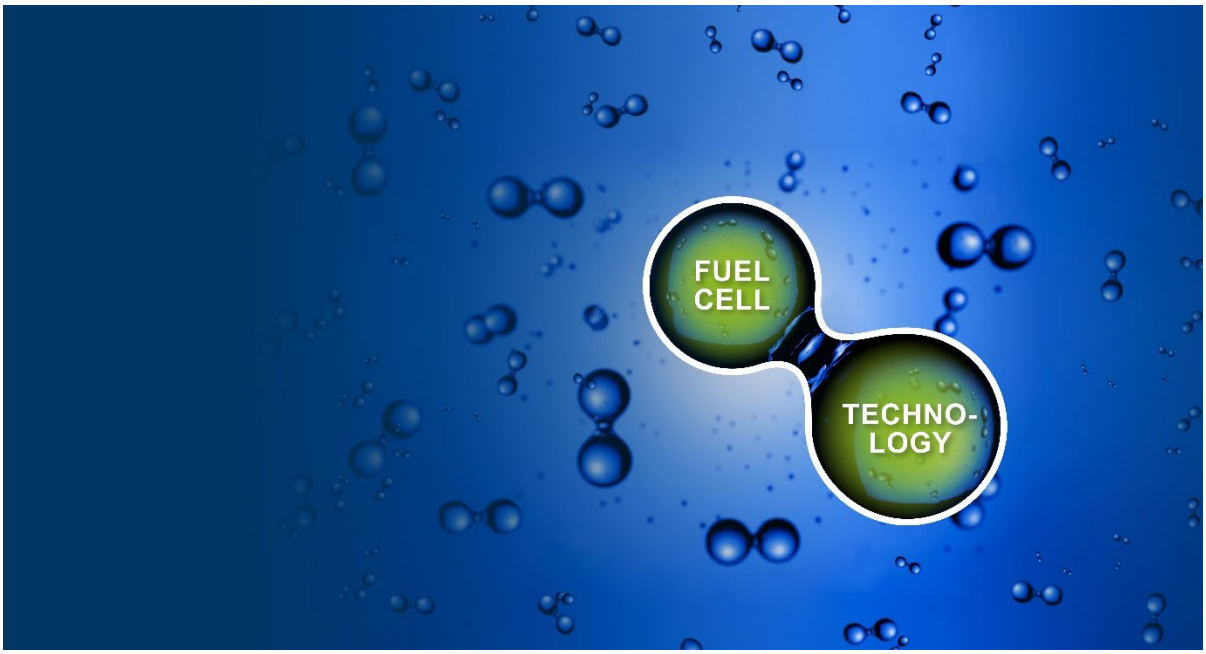

Press release: Air compressor research project kick-off (IHI/ TU Chemnitz/ Silver Atena)

The fuel cell as an economically attractive power source

IHI Charging Systems International GmbH, Silver Atena GmbH and Chemnitz University of Technology are developing an energy-efficient, turbine-assisted air compressor (turbo compressor) for fuel cell-powered vehicles.

The joint research project of the three partners aims to reduce the system costs of a fuel cell system. In this way, the economic attractiveness of fuel cell technology for the future will be noticeably increased in order to grow hydrogen-based electromobility sustainably.

This can be achieved through:

1. Design optimization of the fuel cell system,
2. Deployment of an energy-efficient, turbine-assisted air compressor,
3. cost-optimised components
4. energy-efficient design of the control concept.

The air compressor is an essential component of the fuel cell system. By implementing new design concepts, its manufacturing costs can be reduced. System efficiency will be improved in parallel through matching components to the application.

The solution concept planned by the three parties is to recover energy from the exhaust with a turbine and feed it to the air compressor. This process results in a reduction of the energy needed by the charging system up to 40%. Cost and weight reductions are achieved through wear-optimised air bearings, material- and production-optimised mechanics, and end-to-end use of lightweight materials. The extreme dynamic requirements and peak load performance are ensured with the aid of energy-efficient power electronics via special control technology.

The project, which is funded by the German Ministry of Economics and Climate Protection with a total volume of twelve million euros, is scheduled to run for 33 months. Successful market entry is expected in the long-haul commercial vehicle segment, with the focus on high power long-haul applications. The

long operating times in this application mean that the initial investment can be recovered more quickly via the saved operating costs.

IHI Charging Systems International GmbH (ICSI) is a subsidiary of IHI Corporation (Tokyo). Its employees develop, produce and sell turbochargers for the European automotive industry. The company's headquarters are located in Ichtershausen (Thuringia).

The Department of Advanced Powertrains (ALF) at the **Chemnitz University of Technology** conducts research in the field of electromobility. Their focus here is on fuel cell electric drives.

Silver Atena GmbH offers intelligent solutions for prototypes and small series in the field of safety-relevant systems and power electronics as a premium development partner and high-tech supplier.

Grant project title:

"Development of a turbine-based air supply system for fuel cell propulsion systems, focusing on integral control, energy-efficient power electronics, and recuperative air charging technology."

Supported by:

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