

Invited
Speaker



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Systems

**Fuel Cell Hybrid Electric Energy
for Shipping**
S0403

TALK TITLE

Fuel Cell Hybrid Electric Energy for Shipping

ABOUT

Dr. Manfred Stefener is General Manager & President of Freudenberg e-Power Systems, Munich (Germany). He joined Freudenberg Sealing Technologies Global, Weinheim (Germany) as VP Lead Center Fuel Cell Systems in 2018. Prior to that he lead Elcomax / Elcore, Munich (Germany) which he founded in 2006. Dr. Stefener completed his PhD on the subject "Electrode Structures for Direct Methanol Fuel Cells" at the Technical University of Munich, Germany. He is author of numerous patents and publications in DMFC technology and fuel cells and received several awards for pioneering the commercialization of fuel cells and for entrepreneurship.

ABSTRACT

In order to reduce the impact of global shipping on the environment and the amount of greenhouse gases emitted, maritime players are being forced to develop alternative propulsion systems for ships.

Depending on the type of vessel and range requirements, there are currently limited solutions available. For long distances, diesel or heavy fuel combustion engines are still the technology of choice. As penalties for port calls and emission control areas increase, new technologies such as battery and fuel cell hybrid systems are becoming more viable. These technologies can be integrated into existing ship designs. Depending on the operational profile, hotel loads or short voyages can already be covered. Safety and regulatory guidelines are available and covered by the IMO. As both systems are new, performance updates and price reductions are expected to further improve the total cost of ownership advantage over internal combustion engines.

