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Make it Fly - The Future of Sustainable Aviation

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Abstract:

Even if the impact of aviation on global warming is "only 3.5%", in absolute terms we are speaking about gigatons of CO2, which must be massively reduced by 2050: net zero CO2 by 2050 is the goal. To support this, Airbus wants to be a pioneer of decarbonized aviation and already in 2018, Airbus decided to take disruptive steps and continued to do so during the Corona crisis. We evaluate hydrogen powered propulsion technologies in regards to electronics & electric motors, fuel cells, liquid hydrogen storage and gas turbines. The fuel cell uses hydrogen to convert it into electrical energy. The electrical power of the fuel cell is used via power electronics to drive electric motors, which are connected to the propeller shaft via gears. Hydrogen direct combustion is the second form of drive for the propeller shaft. For this, the hydrogen (ideally in liquid form) is compressed and then sprayed into the combustion chamber. The heat generated by the ignition is used in a thermodynamic process to drive the shaft via turbine blades (similar to a classic jet engine). But on the way to this goal there are still some challenges to overcome → technically, logistically and also politically.

Curriculum Vitae:

Ms. Neuland studied aerospace engineering at the University of Applied Science in Hamburg. Since 1998 she has been working for Airbus in different positions in engineering and customer service.

Her key positions were:

- At the A380 program as Ho Attestation A380 Electric
- In the Airbus spares business as Ho Material & Logistics Engineering
- Within the Cabin Engineering as Ho Seat Architecture
- Continuing in customer service as Ho Quality SATAIR (Airbus Service Company)
- From 2020 on she is working in the hydrogen R&T area of Airbus and has overtaken her current position as hydrogen responsible (beyond ZEROe) in R&T since last October.

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