



September 27, 2018

Volkswagen and US elite Stanford University develop a fuel cell for the future

- **New triple power fuel cell catalyst developed**
 - **Significant cost reduction with simultaneous increase in performance values**
-

Wolfsburg/Stanford – The fuel cell is regarded as a serious alternative to the classic electric car with battery cells. However, the biggest problem is the comparatively high cost of the technology. A partnership between Volkswagen and the prestigious Stanford University in the US has now significantly reduced this disadvantage thanks to a newly developed process.

One of the biggest cost drivers for fuel cells in particular is the use of the precious metal platinum. Platinum is required as a catalyst to operate the fuel cell. The material is distributed as particles on carbon powder. However, the desired catalytic process only takes place on the surface of the platinum particles, which wastes large quantities of the cost-intensive material.

In a process newly developed by Volkswagen and Stanford University, platinum atoms are specifically placed on a carbon surface in order to produce extremely thin particles. This can reduce the amount of platinum currently required to a fraction of this amount. This increases the efficiency of the newly developed fuel cell catalyst by a factor of three compared to current technology, while at the same time increasing its durability.

Prof. Prinz of Stanford University: "This technology opens up enormous possibilities for cost reduction, as the amount of precious metal used is minimised. At the same time, service life and catalyst performance are increased. In addition to the fuel cell, atomic layer deposition also offers a whole range of other applications requiring high-performance materials, such as next-generation lithium-ion batteries."

Not only fuel cells, but also conventional batteries benefit from the researchers' new findings. Dr. Thomas Schladt from Volkswagen Group Research: "This is of course also interesting for other automotive applications, such as batteries. However, the modified variant of ALD

Press contact

Volkswagen Communications

Jens Bobsien
Head of Communication Technology,
Innovation and Design
Tel.: +49 5361 9-32529
jens.bobsien@volkswagen.de

Product Communications

Stefanie Blabl
Communication Technology
Tel.: +49 5361 9-14079
stefanie.blabl@volkswagen.de



More at

volkswagen-newsroom.com



(atomic layer deposition), which was developed here, takes the whole thing to a whole new level."

The fuel cell has great potential in emission-free mobility. The advantages over current electric vehicles are significant. In terms of efficiency, range and refuelling times, cars with fuel cells are comparable to conventional combustion engines. However, the vehicle only gives off water and heat as emissions. Due to the comparatively high production costs, the fuel cell is currently still a niche product. However, with the help of the new catalyst technology, the economic efficiency would increase enormously. This would make the fuel cell a real alternative to battery-powered drives and the classic combustion engine. The task of the researchers is now to transfer the results obtained in the laboratory to industrial large-scale production.

About the Volkswagen brand: "We make the future real"

The Volkswagen Passenger Cars brand is present in more than 150 markets throughout the world and produces vehicles at over 50 locations in 14 countries. In 2017, Volkswagen delivered 6.23 million vehicles, including bestselling models such as the Golf, Tiguan, Jetta or Passat. Currently, 198,000 people work for Volkswagen across the globe. The brand also has over 7,700 dealerships with 74,000 employees.

Volkswagen is forging ahead consistently with the further development of automobile production.

E-mobility, smart mobility and the digital transformation of the brand are the key strategic topics for the future.
