Application Center

Plasma particle technology

What are the focal points of the departmen?

The Application Center's core technological expertise lies in low-energy plasma spraying and atmospheric plasma-enhanced chemical vapor deposition (PEVCD). This process is used in order to coat thermally sensitive objects such as thin films, membranes or papers. Our focus thereby lies on the development of products with integrated current conduction and sensors, the coating of membranes for the hydrogen and battery industry, tribological coating systems and barrier coatings. Further key areas are powder coating and the medical plasma permeabilization of biological samples."

What are the plans for the future?

In a world that is increasingly having to face the challenges of sustainability and environmental protection, the focus lies on the development and implementation of resource-conserving plasma treatment and coating technologies. Our aim is to promote the production of recyclable, bioeconomic materials. This includes, for example, the use of biological starting materials or the reduction of fluorine-containing substances in coating technology. The challenge thereby lies in the transfer of these techniques to industry in order to achieve sustainable materials management."

What were the highlights in the reporting year?

In line with the German government's hydrogen strategy, the ScaleH2 project of the BMBF's HyGATE funding initiative has been launched. Within the framework of the project, we are working closely with partners from Germany and Australia, including ATCO, the University of New South Wales (UNSW) and the University of Technology Sydney UTS, the Fraunhofer Research Institution for Energy Infrastructures and Geothermal Systems IEG, the Institute of Energy and Process Systems Engineering at the TU Braunschweig, Whitecell-Eisenhuth GmbH & Co. KG and, as associated partners, Salzgitter AG and Uniper SE. The aim of the project is the utilization of scalable PEM electrolysis stacks with innovative materials in order to create renewable hydrogen in a cost-efficient way."

Plasma-sprayed temperature sensors.

#WeKnowSolutions

- Low-energy plasma spraying
- Atmospheric plasma-enhanced chemical vapor deposition
- Development of plasma sources, device and system construction
- Powder coating and powder modification
- Plasma permeabilization

Contact

Prof. Dr. Wolfgang Viöl
Phone +49 551 3705-218
wolfgang.vioel@ist.fraunhofer.de