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Cathrin Becker

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Offen im Denken

Prof. Dr. Corina Andronescu is new at the UDE: The quest for the dream reaction

While politicians are struggling for mandatory solutions to limit carbon dioxide (CO₂) emissions, Dr Corina Andronescu is researching a complementary solution – the electrochemical conversion of CO₂ into usable fuels such as methanol, called "Dream Reaction". In December, she was appointed junior professor for electrochemical catalysis at the University of Duisburg-Essen (UDE).

It would indeed be a "dream reaction" to either permanently store the climate-damaging gas or convert it into something useful. And it would be an approach to counteracting global warming. Another approach is electrocatalytic water splitting, which produces hydrogen. This universal energy store can be used, for example, to power vehicles. Both processes are based on electrocatalysis, the core of Andronescu's research. Her goal is to develop catalysts that are stable over the long term while maintaining high electrical conductivity. To this end, she embeds the catalyst material as nanoparticles in carbon lattice structures.

At the UDE, she will be located both at the NanoEnergieTechnikZentrum (NETZ) and the Zentrum für BrennstoffzellenTechnik (ZBT) and set up a laboratory for electrochemistry. "It is a great opportunity to be in direct touch with colleagues who produce suitable materials for this purpose."

Even before her appointment, the Romanian-born scientist conducted research at the university alliance UA Ruhr: She was head of her own research group on the subject at the Center for Electrochemical Science at the Ruhr University in Bochum. As a postdoctoral student, she previously worked on materials for biosensors and coatings at the Polytechnic University of Bucharest, where she completed her master's degree in 2011 and her doctorate in 2014. Since 2017, she has co-invented a patent application for self-healing nanoparticle-based catalyst layers for electrocatalysis.

Andronescu's professorship is part of the Federal Government's programme for the promotion of young scientists (WISNA), which aims to offer young scientists a transparent and predictable path to a professorship for life. To date, 468 of these tenure-track professorships have been funded throughout Germany, 21 of them at the UDE.

Editor: Birte Vierjahn, +49 203 37-98176, birte.vierjahn@uni-due.de

wissenschaftliche Ansprechpartner:

Prof. Dr. Corina Andronescu, corina.andronescu@uni-due.de