

## EC2/BIG-NSE PhD student awarded with prize from the "Forum Junge Spitzenforscher"

Start Time: Tuesday, November 26, 2019

End Time:



We are proud of our EC2/BIG-NSE PhD student Ammar Al-Shameri for his success (4th place) at the "Forum Junge Spitzenforscher-Klimawandel". He is a PhD student in the research team of Dr. Lars Lauterbach at the TU Berlin and works at a highly interdisciplinary project together with Dr. Bettina Nestl, Universität Stuttgart. His work is based in the field of green chemistry and is about "electro-driven synthesis of N-heterocycles".

The use of biological catalysts is a major tool to perform a greener chemistry and is an important step for lowering the CO<sub>2</sub> footprint. However, many biological catalysts require reduced factors to perform regio- and stereo specific substrate conversions. An efficient cofactor regeneration system is required to avoid the stoichiometric addition of reduced cofactors. The use of hydrogenases for these regeneration systems allows efficient H<sub>2</sub>-driven production without any side-products. H<sub>2</sub> is explosive in air, thus our novel approach is based on in-situ H<sub>2</sub> synthesis through electrolysis. H<sub>2</sub> is only produced in quantities, which are immediately consumed by the biocatalysts for synthesis. This guarantees that no explosive conditions occur. Electricity for our electro-driven biotransformation can be generated by solar energy. The aim of our approach is to produce fine chemicals in a sustainable and scalable system in the future.