Technische Universität Braunschweig

InES
Institut für Energie- und Systemverfahrenstechnik

Development of digital twins for electrochemical fuel synthesis process

At the Institute of Energy and Process Systems Engineering (InES), we combine dynamic optimization methods with the concept of elementary process functions (EPFs) to ensure a universal problem formulation and innovative “out-of-the-box” intensified synthesis processes of electrofuels.

Would you like to contribute to the development and use of digital twins and optimization methods for electrochemical fuel synthesis processes? If you also have some experience in modelling and simulation of (electro)chemical conversion processes, you can support our research in the PSE group best. The theoretical and experimental findings and results are documented in a report according to scientific standards, optionally in German or English.

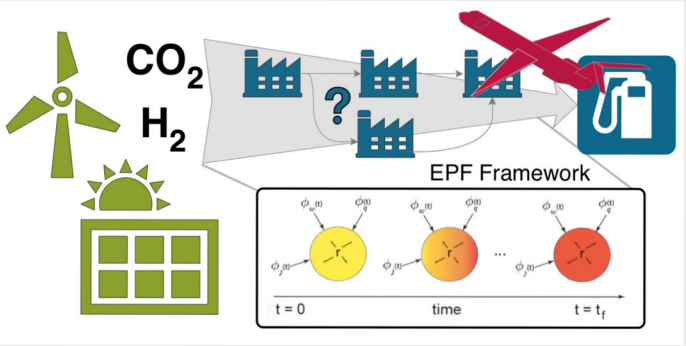

Figure: Model-based design of a virtual electrofuel production line using a universal and apparatus-independent optimization formulation via elementary process functions (EPFs).

Requirements:

- Capable of carrying out independent research, creative and interested in systems technology issues.
- Experience in the modelling of (electro)chemical processes (reaction kinetics).
- Experience in using simulation tools such as MATLAB, Python or Julia.

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Student work offers : Master thesis / Bachelor thesis / Student thesis