



Institute for Automation and  
Applied Informatics (IAI)

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## Hiwi-Job

# Identification of dynamic greybox models for the control of a power-to-methanol process

Key Words: PtX, Greybox models, system identification, modeling

In order to reduce climate-damaging greenhouse gas emissions, the German energy transition is increasingly focusing on renewable energies and alternative fuels such as e-fuels. The international research project "UP-TO-ME" is working on the development of a new type of power-to-methanol process in which green methanol is produced from electricity from renewable energies and carbon dioxide as a fuel for ships. A container-sized test plant is currently being put into operation in the Energy Lab at KIT Campus North.

Precise control of the process is required for efficient operation of the test plant at KIT. This requires the identification of control models for various sub-processes of the power-to-methanol plant. For this we are looking for a committed and motivated research assistant. The tasks include carrying out simulations with process engineering software to obtain data and identifying control engineering (greybox) models to control the process.

### Tasks:

- Familiarization with process control software AVEVA
- Carrying out simulations to obtain relevant data
- Development and identification of grey box models
- Evaluation of the models with real measurement data from the test facility

### Education, experience and skills:

- Field of study: mechanical engineering, mechatronics, computer science, electrical engineering (or similar)
- Basic knowledge of Matlab and/or Python
- High motivation and ability to work independently

We are flexible in the choice of weekly working hours. The work can be carried out both on site at the Campus Nord and in the home office.

For further information please contact:  
Max Kollmer ([max.kollmer@kit.edu](mailto:max.kollmer@kit.edu))