

Low-cost Miniaturized Sensors for Liquid Phase Model Reactors

Commercially available sensors for electrical conductivity are costly and strongly influence the flow behavior in our model reactors (stirred tank and plug flow reactor). Recently, we have developed low-cost, miniaturized sensors and data acquisition for electrical conductivity measurement in continuous reactors (see Fig.1). They show a similar precision as commercial sensors. However, corrosion, applicable concentration range, data transformation, and plotting still need to be addressed.

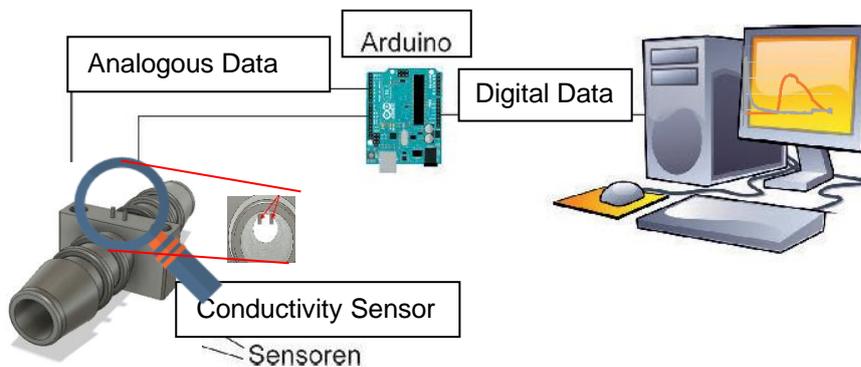


Figure 1: Conductivity sensor setup for data acquisition in a plug flow reactor. The sensor signal is transformed from analogous raw data via an Arduino microcontroller into a digital conductivity signal for further data analysis.

Scope of the internship

- Development of improved measurement systems and testing
- Improvement of data transformation and plotting (graphical user interface and basic programming)

Special Requirements

- Interest in laboratory work and / or electronic devices
- Basic knowledge of programming
- Experiences with Arduino systems or similar are beneficial.
- **Note:** The specific tasks will be adapted to the qualification level and skills of the students.

Qualification level: B.Sc. or B.Eng (3rd semester or higher) up to Master's degree