

Estimation and Control Algorithms for Fermentation in a Bioreactor

During gas fermentation, microorganisms can utilize different gases such as carbon dioxide to grow and produce useful side products such as biodegradable plastics. To optimize the process, an **automated bioreactor** was set up in cooperation with the institute of biotechnology and biochemical engineering and experiments with different controllers were carried out.

The goal of this thesis is the **simulation** of the chemical and biotechnological processes, development of control and estimation strategies and **experimental verification** of the algorithms in the experimental setup.

- Development of control and estimation algorithms for different fermentation processes.
- Integration of sensors into bioreactor and LabVIEW environment
- Perform fermentation experiments

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