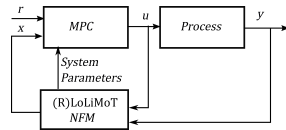
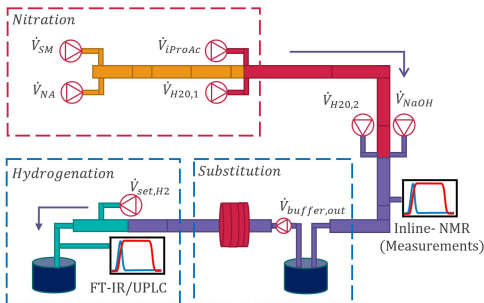


Synthesis Control

Development of model-based strategies for real-time control of active pharmaceutical ingredients (API) synthesis.

- Continuous Synthesis of Mesalazine: drug for the treatment of inflammatory bowel diseases, functional materials and explosives.
- Distributed Parameter Process modeled by means of Neuro-Fuzzy-Models & LoLiMoT algorithm.
- Development of Online model adaptation: Recursive LoLiMoT algorithm.
- Application of Model-Predictive-Control (MPC) for API synthesis plant.



$$u^T = [\dot{V}_{SM}, \dot{V}_{NA}, \dot{V}_{iProAc}, \dot{V}_{H2O}, \dot{V}_{NaOH}, \dot{V}_{b,out}, \dot{V}_{set,H2}]$$

$$y^T = [C_{Mesalazine}, C_{side-products}]$$

Objective: Maximize production of Mesalazine, reducing side products, and costs.