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PhD student / ESR 11

PhD on

Developing process control strategies for cell culture in membrane bioreactors

Aim & Things done
October 2014

PhD start date: October 2013

University of Calabria, Italy

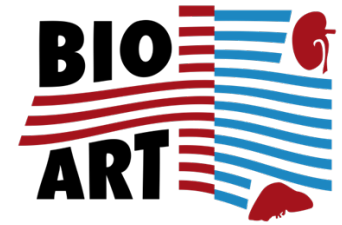
UNIVERSITÀ DELLA CALABRIA



Dipartimento di Ingegneria per l'Ambiente e il Territorio e Ingegneria Chimica



Objectives



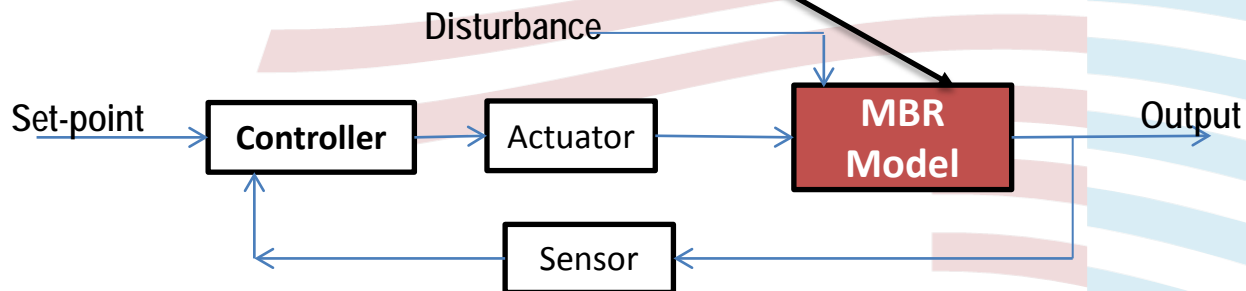
Objectives:

Dynamic analysis

Control synthesis



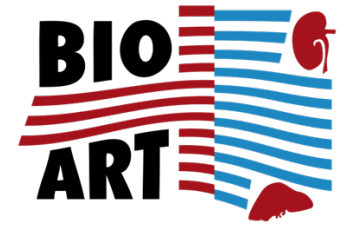
Dynamic analysis



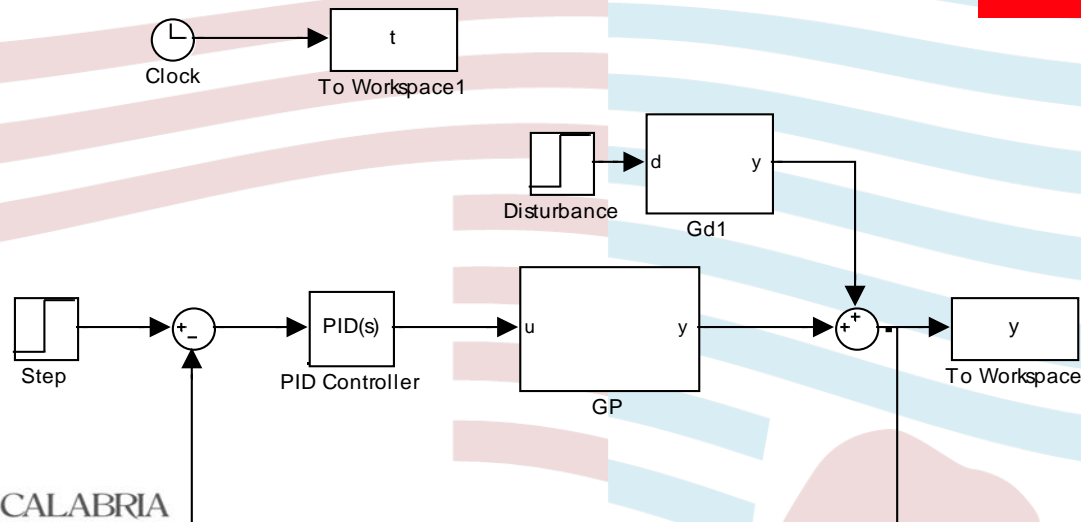
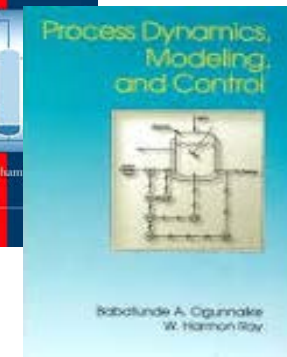
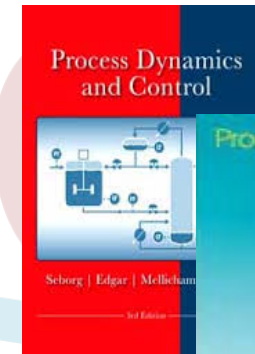
Control synthesis



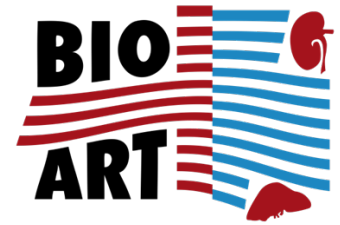
Experience and training



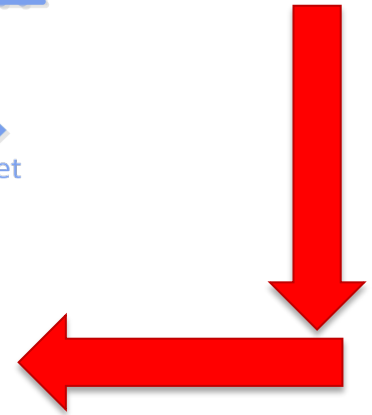
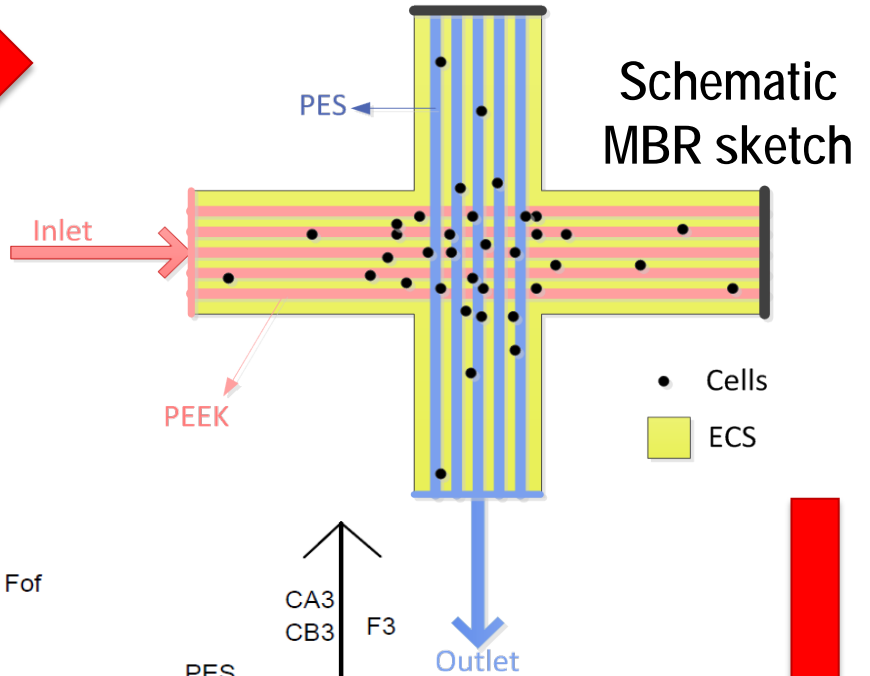
- Literature survey on membrane bioreactors for cells culture and control strategies
- Theory of Chemical Process Dynamics and Control
- MATLAB and Simulink training



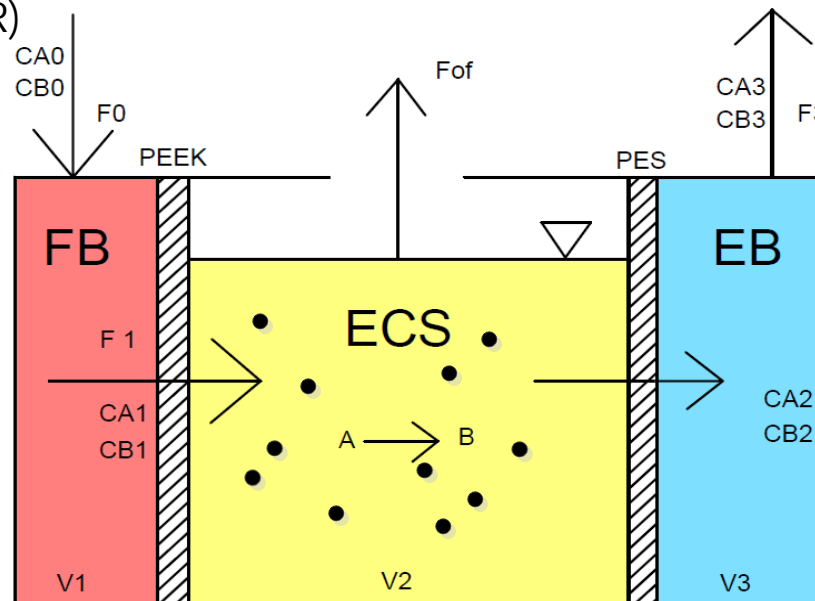
Methodology and preliminary results



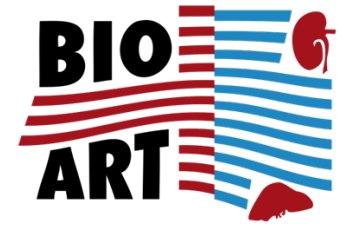
MBR prototype (ITM-CNR)



Simplified three compartment MBR



Methodology and preliminary results



- Implementation of the three-compartment model within the MATLAB environment and computation of output responses to changes of input variables.

- Improvement of dynamic model

- Implementation of Transfer Functions and analysis of sensors and actuators

