

SC42050 Literature Assignment

Fuzzy observers for anaerobic WWTP

Zsofia Lendek

Description

This assignment concerns the design of an observer to estimate variables difficult to measure in a stirred tank reactor, as described in (Carlos-Hernandez et al., 2009).

Questions

1. Describe briefly the application and the problems encountered.
2. Why is an observer needed?
3. What is the main idea of the approach in the paper?
4. What other observers have been developed for WWTPs? What is the difference between those and the one presented in this paper?
5. For what other bioprocesses were fuzzy observers proposed?
6. Do you agree with the statement on page 3: “One main advantage of this representation is the simplification of controllers and observers design for non-linear systems since only linear systems techniques are required.”? Motivate.

References

Carlos-Hernandez, S., Sanchez, E. N., and Béteau, J.-F. (2009). Fuzzy observers for anaerobic WWTP: Development and implementation. *Control Engineering Practice*, 17(6):690–702.