“Green MPC” – an approach towards predictive control for minimal environmental impact of activated sludge processes - DTU Orbit (10/11/2019)

The environmental impact related to alternating activated sludge processes (ASP) includes both global warming potential (GWP) and eutrophication. Here we present a model predictive control approach which minimizes this impact, calculated as CO2-emissions related to electricity production, nitrous oxide emissions from the ASP and eutrophication related to discharge of ammonium and nitrate. We compare solutions for two different set of assumptions regarding released nitrous oxide and eutrophication impact. This results in controls with different resulting emissions and hence we show that the strategy can be used to prioritize environmental impacts.

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