Modifier adaptation for optimizing chemical and biological processes under model-plant mismatch

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In order to reduce production cost and satisfy requirements of quality and safety, process optimization is essential in the process industry. The process optimization is usually based on mathematical models, however, difference between the real plant and the assumed model equations is inevitable and causes decrease of productivity and safety. In this poster session, a method for optimizing the process under model-plant mismatch condition referred to as modifier adaptation and its applications to chemical and biological processes are introduced. Especially, problems of repeated disturbances and multivariate system are solved by machine learning techniques such as deep neural network and latent variable space modelling.