

## Uncertainty analysis of methanol production reactor

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Utilization of carbon dioxide is a big issue in both of industrial and research areas because of the global demands. Methanol can be produced using carbon dioxide and hydrogen as the feed streams by the power-to-fuel concept. In order to simulate and optimize the process, a mathematical model of methanol production reactor is constructed. For the safe production of methanol, it is needed to deal with uncertainty issues in the kinetic parameters derived from the experimental data, feed streams and process conditions. Probability and scenario-based analyses are done based on the constructed reactor model and the optimized economic factor is introduced.