Simultaneous design and control optimisation under uncertainty.

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Simultaneous design and control optimisation under uncertainty

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Abstract

This paper demonstrates how the design and control of processes described by large-scale, complex, mixed-integer dynamic models can be simultaneously optimised in the face of time-varying disturbances and parametric uncertainties. A rigorously modelled distillation example is used for this purpose, where the number of trays, feed location, column diameter, surface areas of the heat exchangers and tuning parameters of the controllers are selected in order to minimise the total annualised cost of the system, while satisfying a large number of feasibility constraints.

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Keywords

Process design; Process control; Uncertainty; Mixed-integer dynamic optimization

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