

Modified measurement based RTO with structural degrees of freedom

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As intense global competition, using optimization technique has become inevitable in chemical process industry. Especially in an aspect of process operation, real time optimization (RTO) attracts many attentions. Classical RTO has two step approach consisting (1) parameter estimation and (2) re-optimization, however, measurement based approaches has been being proposed and applied to several processes recently. Being distinct from classical RTO, measurement based approaches called implicit optimization such as extremum seeking control (ESC), neighboring extremal control (NEC) and self-optimizing control (SOC) formulate the optimization as a control problem so that the computational loaded re-optimization step is unnecessary. Among these RTOs, process model based approaches such as NEC and SCO show the fastest converging property, however they may be seriously harmed by unexpected variances. Thus in this research, a modified measurement based based RTO is proposed by giving structural degrees of freedom to process model so that it keeps fast converging property and copes with unexpected variances.