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## Multivariable constrained predictive control of main steam temperature in ultra-supercritical coal-fired power unit

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Ultra-Supercritical (USC) unit is more and more popular in coal-fired power industry. In this paper, a multivariable constrained predictive control (MCPC) method is introduced for superheated steam temperature control of USC unit. The four levels of superheated temperature including division superheater outlet temperature, platen superheater outlet temperature finish superheater inlet temperature and finish superheater outlet temperature, i.e. main steam temperature, are selected as outputs. The three levels of attemperators spray are selected as inputs. Step responses of the superheated temperature are recorded as the predictive model used in multivariable constrained predictive control algorithm. In simulation, the superheated steam temperature can be controlled around the setpoint closely in load changing. And the proposed method keep the main steam temperature more stable than conventional PID controller.

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