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ADAPTIVE PI CONTROLLER FOR LINEAR MODEL WITH VARIABLE PARAMETERS (LPV) OF THE VVER-1200 REACTOR

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Traditionally, a control object in the synthesis of an automatic control system is represented as a transfer function or in the form of a state space. Such models are unchangeable in time and belong to the class of linear models with constant parameters (LTI, Linear Time Invariant). Also, these models are limited in their ability to describe the dynamics of a nonlinear system near the operating point by linearization.

To cover the entire operating range, a set of linear models around operating points must be used, forming a linear parameter-varying (LPV) model (LPV, Linear Parameter Varying) [1].

This paper investigates a verified VVER-1200 reactor model [2] in LPV format. The simulations were performed in MATLAB. The operating power range of 10-100% of nominal was selected as the setpoints. Conclusions are drawn on the applicability of the gain-scheduling approach for the developing an LPV model of the VVER-1200.

REFERENCES

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