

MULTIPLE-MODEL DESIGN AND SWITCHING SOLUTION FOR NONLINEAR PROCESSES CONTROL

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ABSTRACT

Using multiple model structures is one of the successful solutions for the real-time control of nonlinear or multi-regime processes. Additionally to designing the multi-controller corresponding algorithm, using this structure, imposes solving some specific problems, like best algorithm selection or control algorithm switching. The main goal of this paper is to provide a method for switching the algorithms of the multiple-models structure, based on the principles of manual to automatic bumpless transfer. The applicability of the method is proved using a real-time structure with an RST control algorithm. The results are tested on a special designed hardware and software experimental platform.