

RESEARCH PAPERS

基于IMC结构的PID-GPC的鲁棒性分析

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摘要 Proportion integral differential generalized predictive control(PID-GPC), a new type of generalized predictive control(GPC) is introduced, and its quality is analyzed with internal model control (IMC). A very important characteristic, which distinguishes GPC from ordinary IMC, and the robust effect are found. At the same time, a robust region is obtained according to the control laws, so that the defect that the robust analysis could be carried out only with stable models is overcome. It is verified that the robustness of PID-GPC is stronger than general GPC.

关键词 [process control](#) [internal model control](#) [predictive control](#)

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Analysis of Robustness of PID-GPC Based on IMC Structure

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Abstract Proportion integral differential generalized predictive control(PID-GPC), a new type of generalized predictive control(GPC) is introduced, and its quality is analyzed with internal model control (IMC). A very important characteristic, which distinguishes GPC from ordinary IMC, and the robust effect are found. At the same time, a robust region is obtained according to the control laws, so that the defect that the robust analysis could be carried out only with stable models is overcome. It is verified that the robustness of PID-GPC is stronger than general GPC.

Key words [process control](#); [internal model control](#); [predictive control](#)

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