

Ziegler–Nichols PID Controller Based Intelligent Fuzzy Control of a SPM

System Design

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Abstract

This research is to use Ziegler–Nichols PID controller as a basement for the fuzzy controller design in the outer-loop of a Scanning Probe Microscope (SPM) to reduce the hysteresis effect. This improvement has been verified by practical implementation. Comparing the results with a previous design for the outer-loop with PI compensator, one can see that the proposed system is more robust.

Keyword : Ziegler–Nichols PID controller, PID Fuzzy controller, SPM, Hysteresis effect, LVT