SLIDING MODE BASED FUZZY CONTROL FOR POSITIONING OF OPTICAL PICKUP HEAD

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Abstract- A laser diode package is mounted on an optical pickup head actuator. The laser diode package is used to sense the displacement of a moving target by self-mixing interference signals. A sliding mode based fuzzy control method is developed to achieve fast response of the optical pickup head actuator, which is driven in a focusing direction. Simulation results show the proposed method performs better than sliding-mode control. Experimental results further show that the proposed control method outperforms sliding-mode control.

Index term*:* Sliding-mode control; fuzzy control; optical storage device; feedback lasers; photodiodes.