

**Title:** A Pd-Type Fuzzy Logic Control Approach For Vibration Control Of A Single-Link Flexible Manipulator

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**Abstract:** This paper presents the design of PD-type fuzzy logic controller (PDFLC) for vibration control of a single-link flexible manipulator system. A flexible manipulator system is a SIMO system with motor torque as the applied input and the hub angle and tip deflection as its two outputs. The system is modelled using the finite element method. The PDFLC have two inputs, the hub angle error and its derivatives, the output of the controller is fed to the flexible manipulator model as the control signal which successfully suppressed the vibration and achieved a precise tip deflection at the tip end. The tracking performance and robustness due to payload variation were investigated via simulation in Simulink. The Simulation results show that the PDFLC provides a robust control to both internal and external disturbances.