

Fuzzy control of parabolic antenna with backlash compensation

ABSTRACT

A fuzzy logic based controller (FLC) was proposed for position control of a parabolic dish antenna system with the major aim of eradicating the effect backlash disturbance which may be present in the system. The disturbance is nonlinear and is capable of generating steady state positional errors. Simulation results obtained using SIMULINK/MATLAB 2012a were compared with those obtained when the controller was proportional-derivative controller (PDC). The fuzzy controller portrays that it has the capability of reducing the noise due to backlash and possibly others more than the proportional-derivative controller.

Keyword: Backlash; Control systems; Fuzzy logic; Parabolic antenna; Position control; Radio telescopes; Simulation; Steady state errors