Abstract

One of the most problem of nonlinear mechanical system that limit the performance of the position and speed control is backlash, a controller used in this paper is applied to an induction motor includes a gear, the main purpose of this paper is to study the effect of backlash on the performance of the motor and the goal is tracking speed trajectory, the paper described a comparison of controlling three phase induction motor using PI controller and sliding mode control under the effect of backlash and load torque variations, the simulation is implemented using MATLAB/ SIMULINK, the performance of the system is illustrated via simulation.

References

3. N. Sanchez ,Alexander G. Loukianov "Discrete-Time Neural Block Control Using Sliding Modes for Induction Motors with Gears"
Implementation of Discrete Space Vector Modulation Based Direct Torque Control of Induction Motor for Reduced Ripple: A Sliding Mode Control Approach" international journal of advanced scientific and technical research Issue 2 volume 4, August 2012
8. LÆrincM·rton a,BÈlaLantosb " Control of mechanical systems with Striébeck friction and backlash"Systems& Control Letters 58(2009)141147 elsevier
14. M.Elena Antonio-Toledo, Patricia Ramírez ,Edgar ts of the 19th World Congress ,The International Federation of Automatic Control
17. S.Thomsen, F.W. Fuchs “Speed Control of Torsional Drive Systems with Backlash” EPE 2009 – Barcelona.

Index Terms

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Keywords

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