Abstract

Recent development in power semiconductor technology, digital electronics, magnetic materials and control theory have enabled modern AC motor drives to face challenging high efficiency and high performance requirements in the industry. The Permanent Magnet Synchronous Motors (PMSM) is becoming popular in high performance applications compared to other types of AC motors due to its advantages features including high torque to current ratio, higher efficiency, low noise and robustness [1]. Fuzzy logic control is one of the most interesting fields where fuzzy theory can be effectively applied. Fuzzy logic techniques attempt to imitate human thought processes in technical environments. This paper presents a study on fuzzy rule-base of
fuzzy logic controlled permanent magnet synchronous motor (PMSM) drive. Fuzzy rule-base design is viewed as control strategy. All fuzzy rules contribute to some degree in obtaining the desired performance. However, some rules fired weakly do not contribute significantly to the final result and can be eliminated. In this case total 27 rules are designed. Simulation results that verify appropriateness of the approach are included. Fuzzy logic based motor stator condition monitoring control of PMSM drive is presented in this paper.

References

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Index Terms

Computer Science

Fuzzy Logic
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Pmsm; Fuzzy Logic  Current Controller