

## Documents

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**Measurement-based control approach for tuning PID controllers: application to induction machines**

(2016) *Journal of Control and Decision*, 3 (3), pp. 179-196. Cited 1 time.

**Abstract**

This paper presents an approach to design proportional - integral-derivative controllers for induction machines using measurements. Most control methods developed for induction machines are generally based on mathematical models. Due to complex dynamics of induction machines, identified models are often unable to perfectly describe their behaviour. Thus, the system performance will be limited by the quality of the identified model. Hence, developing control methods that do not require the availability of system model is advantageous. Here, we propose an approach that uses the frequency response data to directly design controllers. The main idea here is to find controller parameters so that the closed-loop frequency response fits a desired frequency response. Its main advantage is that errors associated with the modelling process are avoided. Moreover, the control design process does not depend on the order and complexity of the plant. A practical application to induction machines illustrates the efficacy of the proposed approach. © 2016, © 2016 Northeastern University, China.

2-s2.0-85051722300

**Document Type:** Article

**Publication Stage:** Final

**Source:** Scopus