

**FAULT-TOLERANT CONTROL BASED ON SLIDING MODE CONTROLLER
FOR DOUBLE-FED INDUCTION GENERATOR**

Oussama DJAIDJA

Graduate student, University Mohamed Boudiaf of M'Sila, Department of Electrical Engineering, Laboratoire d'analyse des signaux et Systèmes

Hemza MEKKI

Dr. Instructor Member, University Mohamed Boudiaf of M'Sila, Department of Electrical Engineering, Laboratoire d'Analyse des Signaux et Systèmes

Samir ZEGHLACHE

Dr. Instructor Member, University Mohamed Boudiaf of M'Sila, Department of Electronics, Laboratoire d'Analyse des Signaux et Systèmes

Ali DJERIOUI

Dr. Instructor Member, University Mohamed Boudiaf of M'Sila, Department of Electrical Engineering, Laboratoire de génie Electrique

ABSTRACT

This paper presents a fault-tolerant control (FTC) strategy for Double Fed Induction Generator (DFIG) subject to rotor faults. To steer the active and reactive power to their desired references, a nonlinear sliding mode controller (SMC) is proposed. The suggested SMC can't deal with the effects of fault which can achieve gentle system degradation, in order to obtain better results [1] [4].

The Double Fed Induction Generator (DFIG) has many faults that affect its performance, such as stator winding short-circuit faults, broken rotor bars faults and mechanical rotor faults, for this reason, there are a lot of benefit to design FTC based on Sliding Mode Control that compensates for the impact of this faults [2].

When the fault occur (BRB) in the double fed induction generator a ripple operation can be appear in the output of DFIG especially in the active and reactive power [3], so we increase the gain of the SMC control gradually to compensate the fault effect.

Simulation results are presented to show the effectiveness of the proposed FTC in terms of active and reactive power. The obtained results confirm that the proposed FTC has a better robustness against the BRB fault where the DFIG operates with acceptable performance in both active and reactive power Compared with sliding mode control.

Keywords: Fault tolerant control, Double Fed Induction Generator, Sliding Mode Control, broken rotor bar.



CERTIFICATE OF PARTICIPATION



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