# Condition Monitoring and Fault Detection in Wind Turbine Based on DFIG by the Fuzzy Logic

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**Abstract:** oubly-fed induction generator is widely used in wind turbine conversion systems. Several research works are being made to efficiently approve existing condition monitoring and fault detection techniques for these systems. The condition monitoring ofthese systems becomes more and more important, the main obstacle in this task is the lack of an accurate analytical model to describe a faulty DFIG in the majority of the research tasks. In this paper, we present the monitoring strategy of short-circuit fault between turns of the stator windings and open stator phases in doubly-fed induction generator by fuzzy logic technique. The stator condition monitoring is diagnosed based on the root mean square values of current magnitude in addition to the knowledgeexpressed in rules and membership function. The proposed strategy is verified using simulations performed via the model of Doubly-fed induction generator built in MatLab ® SIMULINK.

**Keywords :** Wind turbine, DIFG, Monitoring, Detection fault, Fuzzy logic.