

Recursive Parametric Identification of a Doubly Fed Induction Generator-Based Wind Turbine

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Abstract : This document presents an adaptive controller based on recursive parametric identification applied to a wind turbine based on the doubly-fed induction machine (DFIG), to compensate the faults and guarantee efficient of the DFIG. The proposed adaptive controller is based on the recursive least square algorithm which considers that the best estimator for the vector parameter is the vector x minimizing a quadratic criterion. Furthermore, this method can improve the rapidity and precision of the controller based on a model. The proposed controller is validated via simulation on a 5.5 kW DFIG-based wind turbine. The results obtained seem to be good. In addition, they show the advantages of an adaptive controller based on recursive least square algorithm.

Keywords : adaptive controller, recursive least squares algorithm, wind turbine, doubly fed induction generator

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