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## New Fuzzy-Variable Gain PI Control of WECS Based on a Doubly Fed Induction Generator

## Abstract

This paper presents a study of powers control for a Doubly Fed Induction Generator (DFIG) used in Wind Energy Conversion System (WECS). For this purpose, a new topology using hybrid controller is applied for the powers generated by the DFIG. The hybridization consists to combine a variable gain PI with Non Entire Degree (VGPI-NED) controller with a fuzzy logic one. The results of simulation show that this technique can be realized and leads to good performances as disturbance rejection and robustness with respect of operating variation and parametric variation of the machine.

Keywords-DFIG, vector control, WESC, power control, VGPI, non entire degree, fuzzy logic, hybridization.

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