

Robust Control of Doubly Fed Induction Generator for Wind Turbine Under Sub-Synchronous Operation Mode

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Abstract: This paper presents a modeling and a robust control of doubly fed induction generator for wind generation system. The whole system is presented in d-q-synchronous reference frame. The regulation of the electromagnetic torque, stator reactive power control and neuronal controller are applied in order to control the rotor currents of the DFIG. For to improve the controller robustness, the study is validated through simulation using software Matlab/Simulink, studies on a 1.5 MW DFIG wind generation system compared with conventional proportional integral controller. Performance and robustness results obtained will be presented and analyzed.

Keywords : wind power generation, modeling, Control, doubly fed induction generator, Neuronal controller, performances.