

Separate Powers Control Structure of DFIG Based on Fractional Regulator Fed by Multilevel Inverters DC Bus Voltages of a photovoltaic System

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Abstract : This paper shows that we can improve the performance of the auto-adjustable electric machines if a fractional dynamic is considered in the algorithm of the controlling order. This structure is particularly interested in the separate control of active and reactive power of the double-fed induction generator (DFIG) of wind power conversion chain. Fractional regulators are used in the regulation of chain of powers. Knowing that, usually, the source of DFIG is provided by converters through controlled rectifiers, all this system makes the currents of lines strongly polluted that can have a harmful effect for the connected loads and sensitive equipment nearby. The solution to overcome these problems is to replace the power of the rotor DFIG by multilevel inverters supplied by PV which improve the THD. The structure of the adopted adjustment is tested using Matlab/Simulink and the results are presented and analyzed for a variable wind.

Keywords : DFIG, fractional regulator, multilevel inverters, PV

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