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Control of Matrix Converter Fed Induction Motor Drive

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Abstract: This paper presents a variable speed control of the squirrel induction machine fed by a three-phase matrix converter. Principle of vector control for induction motor and vector control strategy in synchronous reference frame are described. The use of matrix converter allows the availability of better switching devices, bi-directional power flow and sinusoidal input and output waveform. Also, the advantages of matrix converter are combined with the advantages of the field oriented control technique where Venturini algorithm is applied. We study the operation of the motor in the four regions of speed-torque plane. At this effect, the simulation results of the whole system are carried out with four quadrants of motor operations and the performance results obtained are presented and analyzed. A good performance of induction motor fed by a matrix converter is proved.

Keywords : matrix converter, induction motor, vector control, modelling, Simulation.