

Vector Control of Two Five Phase PMSM Connected in Series Powered by Matrix Converter Application to the Rail Traction

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Abstract : Electric railway traction systems are complex; they have electrical couplings, magnetic and solid mechanics. These couplings impose several constraints that complicate the modeling and analysis of these systems. An example of drive systems, which combine the advantages of the use of multiphase machines, power electronics and computing means, is mono convertisseur multi-machine system which can control a fully decoupled so many machines whose electric windings are connected in series. In this approach, our attention especially on modeling and independent control of two five phase synchronous machine with permanent magnet connected in series and fed by a matrix converter application to the rail traction (bogie of a locomotive BB 36000).

Keywords : synchronous machine, vector control Multi-machine/ Multi-inverter, matrix inverter, Railway traction

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