

Performance Analysis of a 6-Phase PMG Exciter with Rotating Thyristor-Controlled Rectification Topologies

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Abstract : The thyristor bridge rectifier is often used for control of excitation equipment for synchronous generators. However, on the rotating shaft of brushless exciters, the diode bridge rectifier is mostly used. The step response of a conventional brushless rotating excitation system is slow compared to static excitation systems. This paper investigates the performance of different thyristor-controlled rectification topologies applied on the shaft of a 6-phase PMG exciter connected to a synchronous generator. One of the important issues is the steady-state torque ripple produced by the thyristor bridges.

Keywords : brushless exciters, rotating exciters, permanent magnet machines, synchronous generators

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