

## The Design, Control and Dynamic Performance of an Interior Permanent Magnet Synchronous Generator for Wind Power System

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**Abstract :** This paper describes the concept for the design and maximum power point tracking control for an interior permanent magnet synchronous generator wind turbine system. Two design concepts are compared to outline the effect of magnet design on the performance of the interior permanent magnet synchronous generator. An approximate model that includes the effect of core losses has been developed for the machine to simulate the dynamic performance of the wind energy system. An algorithm for Maximum Power Point Tracking control is included to describe the process for maximum power extraction.

**Keywords :** permanent magnet synchronous generator, wind power system, wind turbine

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