عنوان مقاله:

Optimal Design of the Permanent Magnet Synchronous Generator with Using Multi Objective Particle Swarm Optimization

محل انتشار:

اولین کنفرانس بین المللی دستاوردهای نوین پژوهشی در مهندسی برق و کامپیوتر (سال: 1395)

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خلاصه مقاله:

This paper propose a method to design Permanent Magnet Synchronous Generator (PMSG) used in small wind turbines with using Multi-Objective Particle Swarm Optimization (MOPSO). Nowadays Because of high efficiency, flexibility, brushless construction, light weight, small size, high reliability and less frequent maintenance make PMSG machines good candidate for wind turbines, also doubly fed induction generators being widely used. This generators operate at high power factor and it's suitable for low-speed and direct drive wind energy systems because of large number of poles can be accommodated. A systematic and sequential methodology for design of PMSG is proposed with high performance wind generator with optimal parameters are determined with proposed technique using Maxwell 2-D software and MOPSO algorithm. The calculation and optimization are verified with Maxwell which is based on 2-D finite element method. The result demonstrated proposed machine had good performance and great candidate for small-wind turbines.

کلمات کلیدی:

Permanent Magnet Synchronous Generator (PMSG) –Multi-Objective Particle Swarm optimization (MOPSO) – Wind Turbines) – 2D Finite element method (FEM)