Abstract

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Permanent Magnet Synchronous Generator Stability Analysis and Control

In this paper a theoretical approach has been developed to address the stability problem of permanent magnet synchronous generator (PMSG). It is used because of great advantages such as reliability and effectiveness. The proposed technique is obtained through three stages. First stage is to apply linear approximation to the original system. The second stage is to obtain the transfer function in Laplace domain. The last stage is to separate the unstable zero from the original system. Once it's separated a suitable feedback will be designed to treat the instability phenomena. The proposed technique is simulated and tested using Mat Lab program. The results show that the developed approach proof to be a powerful tool for controlling the permanent magnet synchronous generator.