

عنوان مقاله:

A Novel Control to Improve Dynamic Stability of Power Systems Including DFIG and SSSC

محل انتشار:

مجله الکترونیک صنعتی، کنترل و بهینه سازی، دوره 5، شماره 4 (سال: 1401)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Saeed Abazari - Faculty of Engineering, University of shahrekord, shahrekord, Iran

Zabihollah Faramarzi - Faculty of Engineering, Shahrekord University, Shahrekord, Iran

خلاصه مقاله:

This study is concerned with the design of multi-input Dynamic Surface Control (DSC) to dynamic stability improvement of power systems which include both Doubly Feed Induction Generator (DFIG) and Static Synchronous Series Compensator (SSSC). The presented control method has a multi-input feature which acts on synchronous generators. To improve dynamic stability, the control law is developed by applying a suitable Lyapunov function. The coefficients of the proposed controller are determined by use of metaheuristic optimization algorithms. This optimal control law leads to a significantly improved performance in comparison with linear control. A particular low-pass filter is also introduced and applied to cancel the effects of additional undesired terms in the design method, leading to a simplified control form compared to the other available approaches in the literature. Implementing an adaptive parameter estimation scheme will result in the robustness of the proposed method. The effectiveness of the presented approach is investigated on a standard 39-Bus power system which includes DFIG and SSSC.

کلمات کلیدی:

DSC, DFIG, Dynamic stability, SSSC

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1574171>

