

Simultaneous Design Of Damping Controllers And Internal Controllers Of A Unified Power Flow Controller

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Summary

In this paper, the use of a supplementary controller of a unified power flow controller (UPFC) to damp low frequency oscillations is investigated. A new technique to design UPFC damping controllers simultaneously with UPFC internal controllers is proposed. An optimization problem to search for the optimal controller settings is formulated so as to optimize a time-domain based objective function that considers all the controllers simultaneously. The effectiveness of the proposed controllers in damping low frequency oscillations is verified through eigenvalue analysis and non-linear time simulation. A comparison with a sequential design of the controllers under study is also included.

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