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Design of Active Power Filters for Harmonics on Power System and Reducing Harmonic Currents

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Abstract : In the last few years, harmonics have been occurred with the increasing use of nonlinear loads, and these harmonics have been an ever increasing problem for the line systems. This situation importantly affects the quality of power and gives large losses to the network. An efficient way to solve these problems is providing harmonic compensation through parallel active power filters. Many methods can be used in the control systems of the parallel active power filters which provide the compensation. These methods efficiently affect the performance of the active power filters. For this reason, the chosen control method is significant. In this study, Fourier analysis (FA) control method and synchronous reference frame (SRF) control method are discussed. These control methods are designed for both eliminate harmonics and perform reactive power compensation in MATLAB/Simulink pack program and are tested. The results have been compared for each two methods.

Keywords : parallel active power filters, harmonic compensation, power quality, harmonics
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