



## AIUB DSpace Publication Details

**Title:** Real Time Implementation of 3-Phase 4-Wire Shunt Hybrid Active Power Filter Based on PI Controller

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## Abstract:

This paper presents an active and reactive (D-Q) current control method to generate the required reference current for three phase four wire shunt hybrid active filter (SHAPF) to solve power system network problems. Here, the passive elements of SHAPF have been used for compensation of reactive power and lower order harmonics and the active part mitigates the higher order harmonics. A modified phase lock loop has been used to handle the double frequency element of non-ideal voltages. A PI controller is used in the DC voltage loop for minimization of unwanted power loss inside the inverter. The simulation has been conducted in MATLAB/SIMULINK environment for ideal and unbalanced mains voltage condition. A laboratory prototype has been built on dSPACE1104 platform to verify the feasibility of the suggested SHAPF controller. From the simulation and experimental results the robustness of the proposed SHAPF controller has been proved. proportional integral (PI) based UPFC. The results show that the FLC based UPFC has better power flow capability compared to PI controller.