

## **Comparative Study of Hysteresis and Adaptive Hysteresis Band Current Controller under Various Loading Conditions Using PI and FLC.**

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**Abstract :** Today most of the power system applications uses power electronics device for their worthy importance and higher efficiency. These power electronics device have the inherited property of developing internal harmonics and thus this leads to the distortion of the output waveform. The THD content in the waveform is the sign of the error in the output waveform and thus it has to be eliminated out or may lead to greater economic loss and malfunctioning of the power system. Current harmonics are the most general problem that arises in the power system and thus this has to be removed by proper configuring of SHAF which is controlled through PI and FLC controllers. The results were found to be satisfying IEEE-519 standards of THD to be less than 5%. Though Hysteresis controller offer great compensation results but there are some drawbacks and thus we move to Adaptive Hysteresis controller for the betterment of the results.

**Keywords :** Hysteresis Controller, Adaptive Hysteresis, DC Link Voltage, Fuzzy Logic Controller, Harmonics, Shunt Active Filter.

**Conference Title :** ICEP 2014 : International Conference on Electronic Publications

**Conference Location :** journal city, WASET

**Conference Dates :** November 23-23, 2014