



# AIUB DSpace Publication Details

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## Abstract:

Global demand for power has significantly increased, but power generation and transmission capacities have not increased proportionally with this demand. As a result, power consumers suffer from various problems, such as voltage and frequency instability and power quality issues. To overcome these problems, the capacity for available power transfer of a transmission network should be enhanced. Researchers worldwide have addressed this issue by using flexible AC transmission system (FACTS) devices. We have conducted a comprehensive review of how FACTS controllers are used to enhance the available transfer capability (ATC) and power transfer capability (PTC) of power system networks. This review includes a discussion of the classification of different FACTS devices according to different factors. The popularity and applications of these devices are discussed together with relevant statistics. The operating principles of six major FACTS devices and their application in increasing ATC and PTC are also presented. Finally, we evaluate the performance of FACTS devices in ATC and PTC improvement with respect to different control algorithms.