## Active Power Loss Diminution by Spontaneous Process Algorithm

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## Abstract

In this paper Spontaneous Process Algorithm (SPA) is proposed to solve optimal reactive power problem. Formulation of the projected algorithm is done by imitating the process done during nuclear fission and fusion. Every item of a nucleus attribute symbolizes each solution variable. Sequence of operators directs the nucleus and in order to avoid the local optimum it will imitate the dissimilar condition of reaction. In the exploration space nucleus symbolizes the variables and potential solution. Levy flight has been intermingled in the procedure to enhance the diversification and intensification in the search. Spontaneous Process Algorithm (SPA) has been tested in standard IEEE 14, 30, 57,118,300 bus test systems and simulation results show the projected algorithm reduced the real power loss comprehensively and there is increase in percentage of reduction of real power loss.

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