

# **Performance comparison of FLC MPPT with P & O and Incremental Conductance MPPT method for standalone PV system**

## **Abstract:**

Solar energy is one of the most important renewable energy sources. Photovoltaic power is one of the main ways of solar energy utilization, has the characteristics of environmentally-friendly and non-polluting, application range is very wide, has now been used in communication, transportation and other fields, has a place in the national economy energy system. However, the use of the solar energy is deeply influenced by the terrain, topography, position, weather and any other natural conditions, and has the problem about intermittence, sunlight direction and intensity changing along with the time, so it requires a higher request of collecting and using solar energy. The tracking condition must be applied on the solar array characteristics in order to extract its maximum power. This system is called Maximum Power Point Tracking (MPPT) system.

The conventional perturbation and observation (PO) MPPT algorithm is impossible to quickly acquire the maximum power point (MPP), and the tracking course is very difficulty under veil weather conditions, and the essential reason is not known the actual values. The incremental conductance techniques are widely used due to its ease to implementation and high tracking efficiency. The Maximum Power Point (MPP) is not known on the V-I or V-P curve, and it can be located by search algorithms such as the perturbation and observation (P&O) algorithms and the incremental conductance (InC) algorithm. The proposed MPPT controller is designed based on the Fuzzy Logic Control (FLC) approach and the robustness of the proposed control scheme is compared with P&O and Incremental conductance method. The proposed work can be carried out in the environment of Matlab/Simulink.