

Fuzzy controller design using particle swarm optimization for photovoltaic maximum power point tracking

Y.Soufi, M.Bechouat, S.KAHLA

Abstract: Recently, researchers have strongly promoted the use of solar energy as a viable source of energy due to its advantages and which it can be integrated into local and regional power supplies. The P-V curve of photovoltaic system exhibits multiple peaks under various conditions of functioning and changes in meteorological conditions which reduce the effectiveness of conventional maximum power point tracking (MPPT) methods and the Particle Swarm Optimization (PSO) algorithm is considered to be highly efficient for the solution of complicated problems. In this paper, the application of this approach based MPPT algorithm for Photovoltaic power generation system operating under variable conditions is proposed to optimize and to design an intelligent controller comparing to conventional one.

Keywords : PV systems, Boost, PWM, MPPT, FLC, PSO