

عنوان مقاله:

Application of Improved Salp Swarm Algorithm Based on MPPT for PV Systems under Partial Shading Conditions

محل انتشار:

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خلاصه مقاله:

Maximum Power Point Tracking (MPPT) is an important concept for both uniform solar irradiance and Partial Shading Conditions (PSCs). The paper presents an Improved Salp Swarm Algorithm (ISSA) for MPPT under PSCs. The proposed method benefits a fast convergence speed in tracking the Maximum Power Point (MPP), in addition to overcoming the problems of conventional MPPT methods, such as failure to detect the Global MPP (GMPP) under PSCs, getting trapped in the local optima, and oscillations around the MPP. The proposed method is compared with original algorithms such as Perturbation and Observation (P&O) method (which is widely employed in MPPT applications), Differential Evolutionary (DE) algorithm, Particle Swarm Optimization (PSO), and Firefly Algorithm (FA). The obtained results show that the proposed method can detect and track the MPP in a very short time, and its accuracy outperforms the other methods in terms of detecting the GMPP. The proposed ISSA algorithm has a higher speed and the convergence rate than the other traditional algorithms.

کلمات کلیدی:

photovoltaic systems, maximum power point tracking, Improved Salp swarm algorithm, Partial shading condition

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