IV. Conclusion

The PPSO algorithm was investigated aiming to find the global peak of PV systems in this study as well as to enhance the efficiency in the operation process of PV systems. Furthermore, obtained results have been compared to the cases of without using any MPPT controllers. Under PSC, the swarm optimization algorithms can track the optimum power points, but only the proposed PPSO algorithm has the capability of tracking the global optimal (the true maximum among the multiple local minimal). Like the classical PSO, the mentioned PPSO-based MPPT is showed the capability of making the steady-state oscillation with smooth characteristic. Moreover, the MPP accurately under large fluctuations of insolation as well as temperature is found. The novel variant, the PPSO gives the higher tracking accuracy with faster convergence speed as compared to the original PSO.

Nomenclature

ANN	Artificial Neural Network
AI	Artificial Intelligence
DE	Differential Evolution
FL	Fuzzy Logic
FLC	Fuzzy Logic Control
GA	Genetic Algorithm
GP	Global Peak
G_{best}	Overall Experience
LP	Local Peaks
MPP	Maximum Power Point
MPPT	Maximum Power Point Tracking
NN	Neural Network
P_{best}	Personal Experience
PPSO	Perturbed Particle Swarm Optimization
PSC	Partially Shaded Conditions
PSO	Particle Swarm Optimization
PV	Photovoltaic
INC	Incremental conductance

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