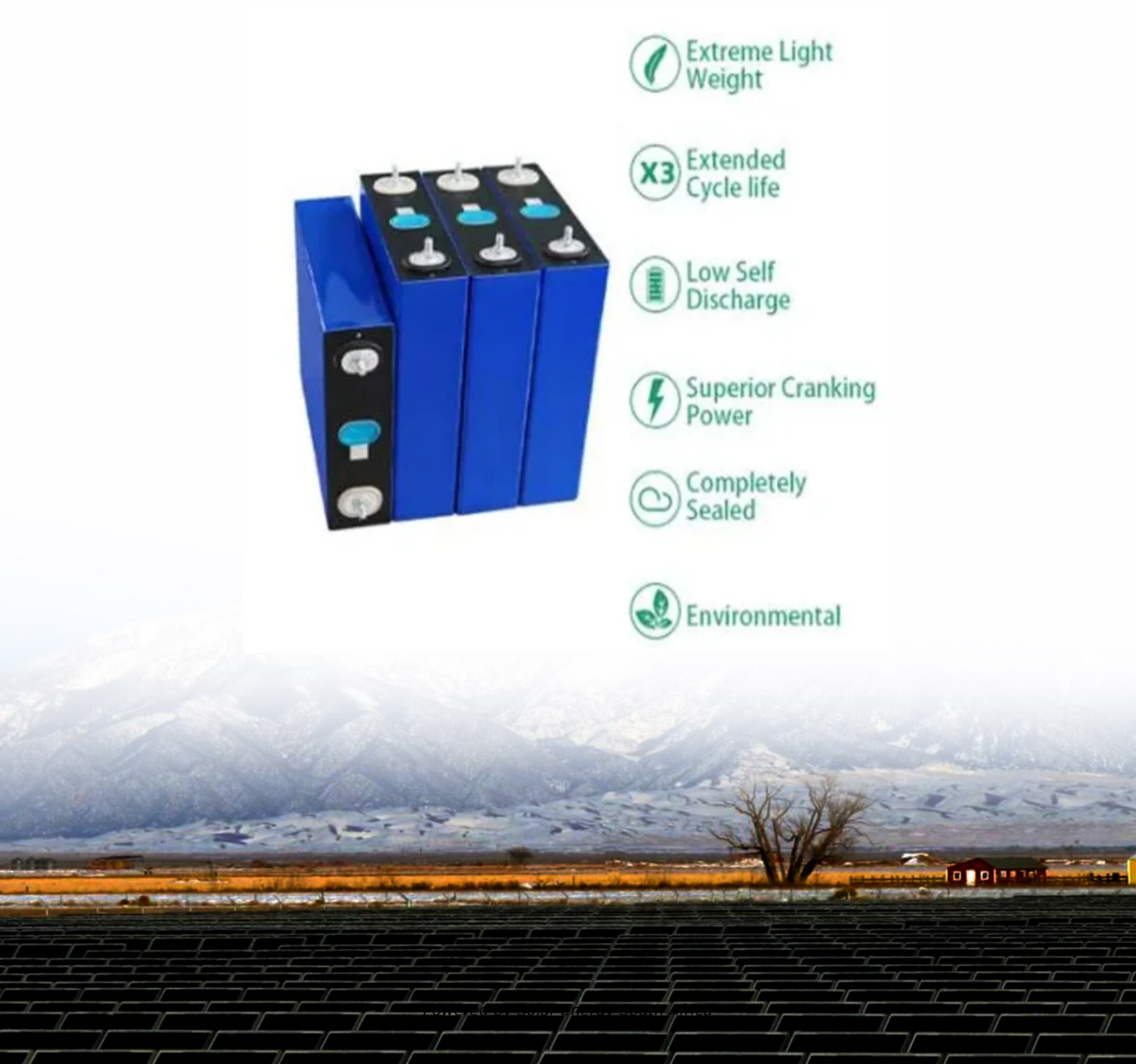
Solar Energy South Africa

Particle Swarm Optimization Microgrid



Overview

Does modified particle swarm algorithm improve microgrid optimization?

The simulation of the optimization effect of the conventional particle swarm algorithm and the modified particle swarm algorithm on the microgrid were carried out, respectively, in MATLAB, which verifies the advantage of the modified particle swarm algorithm on the optimization of microgrids.

How to solve multi-objective optimal scheduling problem of microgrids?

In this study, the Pareto optimal solution theory is adopted to solve the multi-objective optimal scheduling problem of microgrids; the traditional particle swarm and improved particle swarm algorithms are used as the intelligent optimization algorithms; and the data of a power grid in East China are used as the simulation data.

How does the modified particle swarm algorithm work?

The modified particle swarm algorithm sets up an external repository in order to filter and store the particles that meet the requirements. The particles in the repository determine the particle swarm moving state, and the addition and deletion of particles in the repository are accomplished by the adaptive grid method.

Does a modified particle swarm algorithm improve global convergence?

From the above simulation results, it can be understood that the modified particle swarm algorithm obtained through the introduction of variable inertia weight and learning factors has a higher utilization rate of external storage libraries and a better global convergence.

Can particle swarm optimization solve batch-processing machine scheduling problems?

A modified particle swarm optimization algorithm tailored to address a batch-processing machine scheduling problem characterized by arbitrary release

times and non-identical job sizes is introduced 38. Novel machine learning methodologies are applied for fault diagnosis and optimization 39, 40, 41.

What is the inertia weight of the modified particle swarm algorithm?

The initial and final values of the inertia weight of the modified particle swarm algorithm are set to 0.9 and 0.2, respectively, and the larger initial value in the early stage facilitates the global search, while the weight gradually decrease as the number of iterations increases, which is convenient for the convergence of the particle swarm.

Particle Swarm Optimization Microgrid

Optimal Costing of Power Generation in Microgrid Using Particle Swarm

An essential method for assessing the effectiveness of microgrid (MG) operations and sizing is economic analysis. The most cost-effective operation and sizing of an MG necessitate the use ...

Particle Swarm Optimization - Model Predictive Control for Microgrid

Particle Swarm Optimization - Model Predictive Control for Microgrid Energy Management Abstract: Microgrid is becoming the most attractive solution for integrating distributed ...

Data-driven optimization for microgrid control under ...

Raghavan, A., Maan, P. & Shenoy, A. K. B. Optimization of day-ahead energy storage system scheduling in microgrid using genetic algorithm and particle swarm optimization. IEEE Access 8, 173068

Particle Swarm Optimization - Model Predictive Control for ...

This paper investigates a method applying constrained multi-swarm particle swarm

optimization without velocity-based model predictive control to optimize the operation cost in small scale ...

A Modified Particle Swarm Algorithm for the Multi ...

In this study, the Pareto optimal solution theory is adopted to solve the multi-objective optimal scheduling problem of microgrids; the traditional particle swarm and improved particle swarm algorithms are used as the ...

Frontiers , Multi-objective particle swarm optimization ...

In this study, we propose a multi-objective particle swarm algorithm-based optimal scheduling method for household microgrids. A household microgrid optimization model is formulated, taking into account time-sharing tariffs and users' travel ...

Optimal Scheduling of Microgrid Based on Improved Particle Swarm

Microgrids have attracted more and more attention due to their low cost, low voltage, and low pollution. The goal of microgrid development is not only to ensure The traditional particle ...

A Multi-Agent-Based Optimization Model for Microgrid Operation ...

To solve this model, dynamic guiding chaotic search particle swarm optimization is adopted and three scenarios including basic scenario, energy storage participation and demand response ...

Particle Swarm Optimization for an Optimal Hybrid ...

The particle swarm optimization (PSO) method, with the background given in, is proposed as an optimal strategy to manage microgrids with hybrid renewable energy sources (HRESs) while considering microgrid ...

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