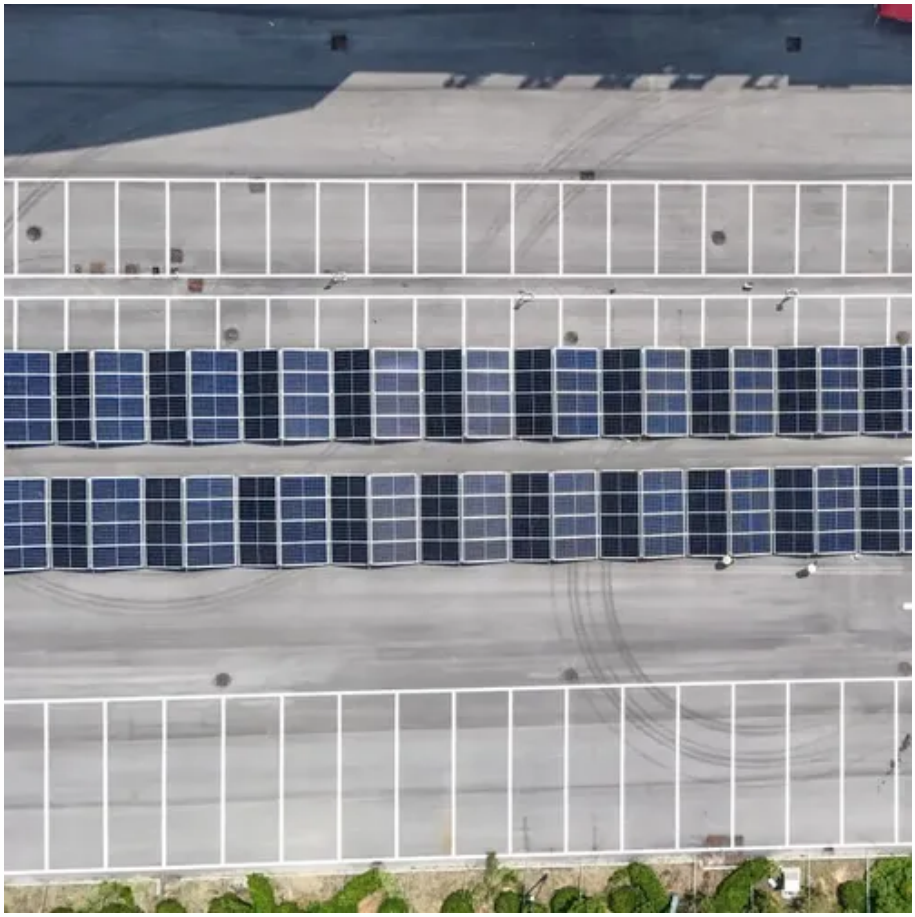
Generated on: 2026-04-01 04:58:49 | Copyright © 2026 IWAP OPTOELECTRONICS. All rights reserved.

Probability of communicating with a green base station



Overview

In this paper, we propose a novel probability aware genetic algorithm for base station ON/OFF strategy in green communications. Our contributions mainly lie in two folds. We introduce an optimization problem to maximize the user terminal coverage ratio with a given. We propose a novel genetic algorithm to optimize the ON/OFF status of base stations with fast coverage estimation, in which the scaling and selection operators are carefully designed to take the probability distribution of the estimated coverage ratio into account. Experiments have been conducted. One potential strategy is to switch off some of the under-utilized base stations during off-peak hours. In this paper, to minimize the on-grid energy cost in a large-scale green cellular network, we jointly design the optimal BS on/off operation policy and the on-grid energy purchase policy from a network-level perspective.

Probability of communicating with a green base station

[Base Station Switching Problem for Green Cellular Networks with ...]

As the network operators need to deploy their base stations to support the peak mobile data traffic, it is inevitable that during a major portion of the day a large number of the base stations are under-utilized.

[Coverage and throughput analysis of an energy efficient UAV base]

The considerable energy consumption overhead involved in flying or hovering UAVs makes them less appealing for green wireless communications. Therefore, in this work, we examine ...

[The Positioning of Base Station in Wireless Communication]

In this paper, a new representation describing base station placement is suggested, and is one which uses a real number and introduces new genetic operators. The proposed representation can ...

[Toward Green Network: An Expanding of Base Station Energy-Saving]

In this article, a robust RL-based multicells sleeping model called graph deep deterministic policy gradient (GDDPG) is developed for handling highly complex communication scenarios. Besides, we ...

[Genetic Algorithm for Base Station ON/OFF Optimization with ...]

In this paper, we propose a novel probability aware genetic algorithm for base station ON/OFF strategy in green communications. Our contributions mainly lie in two folds.

[Genetic Algorithm for Base Station ON/OFF Optimization with Fast]

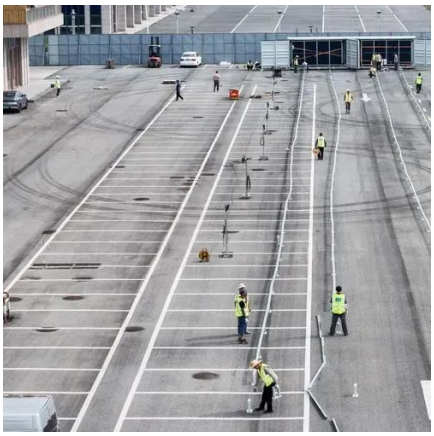
We propose a novel genetic algorithm to optimize the ON/OFF status of base stations with fast coverage estimation, in which the scaling and selection operators are carefully designed to take the probability ...

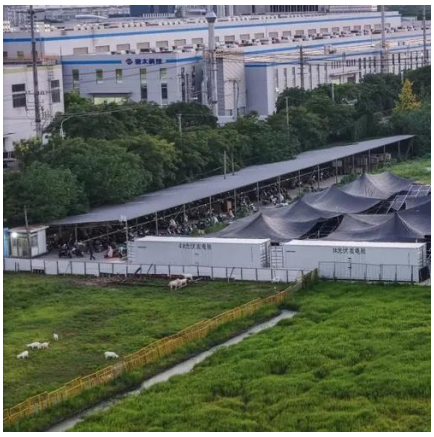
[Traffic-and-interference aware base station switching for green]

Base station (BS) sleeping in cellular networks has emerged as a promising solution for more energy efficient communications, concomitant with lowering the network carbon footprint. ...

[Dynamic Base Station Operation in Large-Scale Green Cellular ...]

In this paper, to minimize the on-grid energy cost in a large-scale green cellular network, we jointly design the optimal BS on/off operation policy and the on-grid energy purchase policy from a network ...





[Performance Analysis of Green Cellular Networks with Selective ...]

Here, the blocking probability is equivalent to the probability that a connection is rejected for admission because of the need to meet the application QoS requirements.

[Genetic Algorithm for Base Station ON/OFF Optimization with Fast]

Genetic Algorithm for Base Station ON/OFF Optimization with Fast Coverage Estimation and Probability Scaling for Green Communications

Contact Us

For catalog requests, pricing, or partnerships, please visit:
https://www.iwap.com.pl
Phone: +34 919 456 782
Email: info@iwap.com.pl

Scan the QR code to access our WhatsApp.