

# **Base station communication mechanism**





## Overview

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How a beamforming system enables smart communication of new types of base stations?

The independent and reconfigurable capabilities in manipulating the propagation directions of four streams have facilitated the smart communication of the new types of base stations. We summarize the properties of the proposed beamforming system in Table 1.

How does distributed execution affect base station control?

In the distributed execution phase, each actor network makes decisions independently based only on its own network and observations, and although each actor executes independently, the whole system is able to obtain a better base station control strategy because their strategies are based on the results of global optimization. Fig. 2.

How can a millimeter-wave base station improve real-time information transmission?

Finally, the proposed metasurfaces help the millimeter-wave base station to realize real-time information transmission of multi-users with different directions in a realistic indoor scenario. The experimental results demonstrate that the new beamforming base station system can intelligently enhance or attenuate signals in specific target areas.

How do BS-relay stations work?

The algorithm takes into account network throughput and coverage to achieve BS-Relay Station deployment. From the perspective of energy and the environment, the power that a BS consumes is proportional to the maximum region that the BS can serve. Cost minimization is an issue that needs to be considered in BS construction.



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Energy-saving control strategy for ultra-dense network base stations

Aug 1, 2025 · A base station control algorithm based on Multi-Agent Proximity Policy Optimization (MAPPO) is designed. In the constructed 5G UDN model, each base station is considered as ...

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Optimization of Communication Base Station Battery ...

Dec 7, 2023 · In the communication power supply field, base station interruptions may occur due to sudden natural disasters or unstable power supplies. This work studies the optimization of ...

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Sleep Mechanism of Base Station Based on Minimum Energy ...

Mar 29, 2018 · Two base sleep mechanisms are proposed to minimize the total energy cost of communication system. Accordingly, the relationship between power consumption and energy ...

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Communication Base Station Site Selection Method Based ...

Oct 10, 2025 · With the large-scale deployment of 5G technology, the rationality of communication base station siting is crucial for network performance, construction costs, and operational ...

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Optimization of Communication Base Station ...

Dec 7, 2023 · In the communication power supply field, base station interruptions may occur due to sudden natural disasters or unstable ...

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Optimizing redeployment of communication base station

Feb 6, 2025 · Most of the current research is based on the performance of the base station (BS) itself or the operation mode of the communication operator without considering the users' ...

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Optimization Control Strategy for Base Stations Based on Communication

Mar 31, 2024 · With the maturity and large-scale deployment of 5G technology, the proportion of energy consumption of base stations in the smart grid is increasing, and there is an urgent ...

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smart millimeter-wave base station for 6G application based ...

Jan 16, 2025 · For illustrating the potential of the proposed prototype in the application of a smart 6G base station, we take the proposed system to assist a millimeter-wave base station and ...

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Collaborative optimization of distribution network and 5G base stations

Sep 1, 2024 · In this paper, a distributed collaborative optimization approach is proposed for power distribution and communication networks with 5G base stations. Firstly, the model of 5G ...

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Understanding Base Stations in Mobile Communication

Dec 5, 2025 · Explore the essential role of base stations in mobile communications.



Understand their design, technology, and the shift to 5G ?. Discover the future impact and sustainability ...

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