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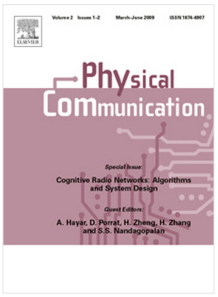

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A Comprehensive Survey: Small Cell Meets Massive MIMO

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Abstract

The deluge of huge data demanding applications has imposed a challenge for next generation cellular system to support high data rate with reduced energy consumption besides ensuring good quality of service. Massive MIMO and small cells are the foremost technologies to address such challenges. Massive MIMO technique refers to deploying a very large number of antennas at the base station, and thus, improving energy efficiency and spectral efficiency of wireless networks. Small cell provides high data rate and good coverage with reduced transmit power by decreasing the distance between base station and user. This paper surveys state of the art of massive MIMO technique with small cell network. First, we discuss fundamental background for massive MIMO. Then, performance metrics and modeling tools for system analysis are studied. Next, details of enabling technologies to massive MIMO small cell network are stated in the paper. Finally, the paper highlights future challenges and research problems.

Keywords: `Backhauling, beamforming, device to device communication, massive MIMO, mili-meter wave, small cell.`

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