

Lens MIMO Based Millimeter Wave Broadcast Channel

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Index Terms

Millimeter Wave communication, Lens MIMO, Hybrid beamforming, Broadcast channel.

Abstract

We consider the beamforming design for the millimeter wave (mmWave) broadcast channel using lens array antenna based multiple-input-multiple-output (MIMO) communication system (also referred to as “lens MIMO” in this work). Recently, lens MIMO based communication was proposed as a promising scheme for the single-user mmWave network to greatly reduce the computational and signal processing complexity of the system. In this paper, we propose a simple beamforming scheme for the lens MIMO in broadcast channels which performs as good as the recently proposed hybrid beamforming (HBF), but with much reduced hardware and power consumption cost, thanks to the energy focusing property of the lens array.



Kushal Anand received his B. Tech. degree in Electronics engineering with First class from the Indian School of Mines (now known as the Indian Institute of Technology (Indian School of Mines)), Dhanbad, India and completed his M. Eng. degree in Electrical and Electronic engineering from Nanyang Technological University (NTU), Singapore in 2008 and 2012 respectively. He worked as a Subject Matter Expert with Amdocs India from 2008-2009, specializing in telecom software, and as a research staff at Infinitus, NTU from 2011-2012, working on audio signal processing and wireless communications. He is currently pursuing PhD in NTU with focus on multi-user wireless communications.



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