

عنوان مقاله:

An Improved Transmit Diversity Method Using Quantized Random Phases

محل انتشار:

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خلاصه مقاله:

Diversity exploitation can be regarded as the most powerful way to solve the problem of multi-path fading in wireless communication systems. Among all methods for exploiting diversity, spatial diversity techniques are appropriate methods in slow and at-faded channels. As a result, transmit diversity techniques are used for these scenarios, to provide diversity by using several antennas in the transmitter. In this paper, an Improved transmit diversity technique is proposed for a broadcast network with an underlying slow-faded channel. It is assumed that no channel state information is provided for the transmitter, so that our scheme can be easily deployed in broadcast networks. The main idea of our proposed scheme is to multiply random phases to data symbols, before transmission. The performance of this scheme is studied by analyzing the outage probability. Comparing the performance of our proposed method with that of single-antenna (no diversity exploitation) scheme illustrates great improvements in reasonably low outage probability regions. Diversity order of the proposed scheme is also derived. For the case of continuous phase set, theoretical analysis has been performed, revealing a diversity order of two for the scheme. As a result, this scheme exploits full diversity order. Simulation results have shown that the same diversity order can be exploited even for the case of two random phases.

کلمات کلیدی:

Wireless communication, Transmit diversity, slow-faded channels, Random beam-forming

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