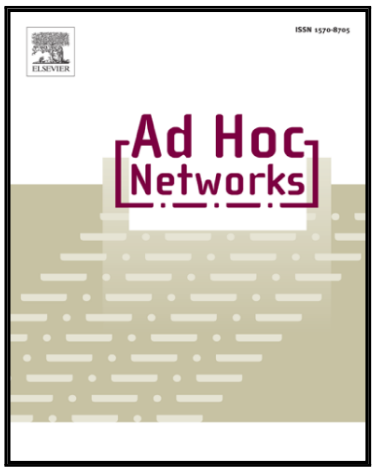

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Abstract

Future wireless system meets the requirements of high network capacity but is suffering from the problems of high interference and resource shortage. In this paper, we develop a hybrid precoding solution by applying the heterogeneous cloud radio access network (H-CRAN) with remote radio heads (RRHs) equipped with nested arrays for a better system control and higher efficiency. We first summarize the related work and highlight our contribution. Then we propose the hybrid precoding scheme after introducing the system model based on the H-CRAN architecture and the nested array. For the proposed hybrid precoding scheme, the RRHs first identify the interference sources around them, then report it to the baseband unit (BBU) pool. The BBU pool identifies the sources of interference and searches for available resource for the RRH. As the frequency may be reused in specific area, the eNB processes the hybrid precoding considering the null-space of the victim users so that the interference can be avoided. Finally, we evaluate the scheme and prove its performance with numerical results.

Keywords: H-CRAN; massive MIMO; nested array; null-space; hybrid precoding