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ABSTRACT

TOPIC: MOBILITY SUPPORT FOR MIMO-NOMA USER CLUSTERING IN NEXT-GENERATION WIRELESS NETWORK

Non-orthogonal multiple access (NOMA) is a promising technology for future wireless systems that can improve spectral efficiency by grouping users into clusters based on channel gain-difference. However, user mobility changes channel gain, requiring re-clustering. This paper studies three re-clustering methods- Arbitrary, One by one ,Kuhn-Munkres assignment algorithm (KMAA), which automatically dissociates identified users within clusters when the gain-difference is lower than a given threshold, followed by a re-association procedure that integrates users into different clusters while maintaining an appropriate gain difference. Experimental results show that KMAA improves efficiency and capacity by minimizing re-clustering events, improving resource utilization, and lowering signaling overhead. Additionally, KMAA provides throughput and outage probability gains across a wide range of mobility scenarios. KMAA analysis for Multiple input multiple output (MIMO)-NOMA demonstrates its link resiliency and ability to maintain an average gain-difference among users in clusters. Overall, KMAA is a promising re-clustering method for NOMA systems that can improve performance in a variety of ways.

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