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User Grouping for Massive MIMO in TDD

This paper proposes a novel user grouping scheme in a single cell for massive MIMO (Multiple-Input-Multiple- Output). The base station (BS) divides the users into multiple groups that are served in different time slots. The proposed algorithm increases the number of users and the transmission reliability in each group by considering the number of users and the mutual spatial correlation arising from all users. It provides the required signal to interference-plus-noise ratio (SINR) for the desired modulation scheme based on a simple assigning process. The proposed algorithm can enhance the performance of several popular linear decoders and precoders such as Minimum Mean Square Error (MMSE), Zero-Forcing (ZF) and Matched Filtering (MF). The effect of the inaccurate channel estimation is illustrated in this paper. Potential solutions are proposed which reduces the effect of the inaccurate channel estimation.

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