

Joint User Association and Power Allocation Using Swarm Intelligence Algorithms in Non-Orthogonal Multiple Access Networks

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Abstract In this paper, we address the problem of joint user association and power allocation for non-orthogonal multiple access (NOMA) networks with multiple base stations (BSs). A user grouping procedure into orthogonal clusters, as well as an allocation of different physical resource blocks (PRBs) is considered. The problem of interest is mathematically described using the maximization of the weighted sum rate. We apply two different swarm intelligence algorithms, namely, the recently introduced Grey Wolf Optimizer (GWO), and the popular Particle Swarm Optimization (PSO), in order to solve this problem. Numerical results demonstrate that the above-described problem can be satisfactorily addressed by both algorithms.

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