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ADAPTIVE POWER ALLOCATION FOR COOPERATIVE NOMA SYSTEM WITH IMPERFECT SIC

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ABSTRACT

Nowadays, the wireless networks demand high spectral efficiency, reliability and energy efficiency for future needs. In the recent decade, non-orthogonal multiple access (NOMA) with two-user cooperative schemes has received considerable attention for 5G systems. This work demonstrates between the source and far user that not a single link is directly established and we communicate via the near user. We introduce an adaptive power allocation scheme with the combination of cooperative NOMA networks. The preferred scheme selects the best user relay on the basis of performance while the distribution of power allocation coefficients is calculated in order to avoid the wastage of power. This approach also gives a brief discussion on the issue of imperfect successive interference cancellation (SIC) problems with the combination of adaptive scheme. A comprehensive analysis on the achievable data rate, sum rate and sum capacity performance of the preferred scheme is done on the MATLAB m file user interface and closed form expression is obtained. Through a numerical approach, we compare the performances of fixed and fair adaptive power allocation networks. These simulations result with various process parameters such as transmit power for the same error performance of a fixed and fair power allocation scheme. That shows the improvement in the adaptive scheme in terms of achievable capacity using different power allocation schemes.

KEYWORDS: *Adaptive Power Allocation Scheme, Cooperative NOMA Network, Fifth Generation, Non-Orthogonal Multiple Access (NOMA), Successive Interference Cancellation*