Abstract

Advance communication systems such as fifth generation (5G) and 5G+ expect to deploy the security solutions for securing the communication networks. Finding the optimum size of the security gap is a challenging problem in the large scale networks. In this paper, the parity check matrix (H) of low-density parity check (LDPC) considered for determining the security gap is analyzed with the higher rate LDPC coding schemes and different size of frames. Here, optimum LDPC decoding is considered as a method. Especially, the physical layer is investigated with H and two different high-rate codes and simulated to find the optimum size of security gaps for better security. Also, non-orthogonal multiple access (NOMA) is employed to enhance the security solution. Thus, optimum security gap is possible when suitable NOMA is employed in the physical layer of the 5G communication system. As expected in this research conclusion, simulation results show that the security gap decreases when frame size is increased.


Analysis of Security Gaps in 5G Communication using LDPC Codes and NOMA


Index Terms

Computer Science Networks
Keywords

LDPC coding, Parity check matrix, security gap, NOMA 5G communication.