عنوان مقاله:

A Comparative study of Genetic and Particle Swarm Optimization Algorithms for Minimizing the High PAPR in OFDM Systems

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خلاصه مقاله:

Orthogonal frequency division multiplexing (OFDM) has been widely used in many wireless communicationsystems due to its high data transmission, spectral efficiency and its robustness against the frequency selective fadingchannels. But, unfortunately, the high peak-to-average power ratio (PAPR) is one of the most important limitations ofan OFDM system. As a result of the high PAPR, the hardware complexity of RF high power amplifier (RF-HPA) will beincreased. Partial transmit sequence (PTS) technique is one of the best solutions to reduce the high PAPR. The PTStechnique usually suffers from exhaustive search complexity, especially when the number of sub-blocks is increased. Inthis study, we investigate genetic algorithm (GA) and particle swarm optimization (PSO) method in PTS based OFDMfor 16-QAM modulation scheme. We compare the performance of GA-PTS and PSO-PTS in PAPR reduction ability.Simulation results indicate that the PSO-PTS is slightly better than GA-PTS with less computational complexity.

کلمات کلیدی:

Orthogonal frequency division multiplexing (OFDM); Peak-to-average power ratio (PAPR); Partial transmit sequence (PTS); Genetic algorithm (GA); Particle swarm optimization (PSO)

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