**A NEW SLM TECHNIQUE BASED ON GENETIC ALGORITHMS FOR PAPR REDUCTION IN OFDM SYSTEMS**

**ABSTRACT—**

Orthogonal Frequency Division Multiplexing (OFDM) technique has been widely adopted in many wireless communication systems due to its high data-rate transmission ability and robustness to the multipath fading channel. One of the major disadvantages of OFDM technique is the high PAPR in the time domain signal. The larger peak-to-average power ratio (PAPR) would cause the fatal degradation of BER performance and undesirable spectrum regrowth. One of the promising PAPR reduction methods is the Selective Mapping method (SLM) which can achieve better PAPR performance without signal distortion. In this paper, a new effective PAPR reduction technique using SLM based on Genetic Algorithm (GA) is proposed. GA is applied to SLM-OFDM system for searching the optimum phase rotation factors and reducing computational burden. The simulation results show that the proposed GA based SLM-OFDM system provides better PAPR reduction compared to conventional SLMOFDM system.

Keywords— Orthogonal Frequency Division Multiplexing (OFDM), Peak-to-Average Power Ratio (PAPR), Selected mapping (SLM), Genetic Algorithm (GA).