

# Chaos Communication System using MIMO Technique

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**Abstract**— The security of chaos communication system is superior to other digital communication system, because it has characteristics such as non-periodic, wide-band, non-predictability, easy implementation and sensitive initial condition. However, chaos communication system increases the number of transmitted symbols by spreading and transmitting information bits according to characteristic of chaos maps. So the research that improves data transmission speed is necessary for chaos communication system. If many antennas are applied to chaos communication system, the capacity of data is proportional to the number of antenna. so it is good way applying multiple-input and multiple-output (MIMO) to the chaos communication system. In this paper, we propose the correlation delay shift keying (CDSK) using  $2 \times 2$  MIMO technique and evaluate BER performance over Rayleigh MIMO fading channel. Lastly we evaluate BER performance applying the boss map with  $2 \times 2$  MIMO using MIMO detection algorithm such as zero forcing (ZF) and minimum mean square error (MMSE).

**Keyword**— *Chaos Communication System; CDSK; MIMO; Zero Forcing; MMSE;*



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