

Abstract

Targeted drug delivery is an emerging research area that aims to revolutionize the treatment of malignant tissues within the body. Communication within the body is an essential part of such a system. Since electromagnetic waves may not be used within the body, molecular communication forms a promising alternative for communication within the body.

This thesis investigates two different types of model in diffusion based molecular communication system. One is Single Input Single Output (SISO) and other one is Single Input Multiple Output (SIMO). The performance of both models has been analyzed in terms of Bit Error Rate during the propagation of molecules in a liquid medium. Performance results are evaluated through appropriate MATLAB coding, which shows that bit error rate of SIMO (Single Input Multiple Output) model is considerably less than that for SISO (Single Input Single Output) model. This work also provides the impact of diffusion coefficient and the distance between transmitter and receiver over the communication path.