

Molecular Communication over Diffusive Channels

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**Abstract:** The engineered molecular communication has got notable attention from the communication researchers due to its possible application in a wide range of areas such as disease detection, disease treatment, lab-on-chip and toxic agent detection in the environment. In molecular communication the nanomachines which are used as transmitter and receiver are equipped with actuating and sensing mechanisms i.e., transmitter nanomachines (TN) have the ability to actuate the transmission of information through molecules by sensing the surrounding conditions, and receiver nanomachines are capable of sensing the information carrying molecules. This talk will focus on the fundamentals and current advancements in the area of molecular and biological communications. Specifically, molecular communication over diffusive channels will be discussed. We will also discuss the role of molecular and biological communications in the future generation of communication systems such as 6G and beyond.

**Bio:** Prabhat Kumar Sharma (S'12–M'15–SM'17) is an Assistant Professor with the Department of Electronics and Communication Engineering, Visvesvaraya National Institute of Technology, Nagpur, India. He has authored over 80 journal and conference papers. His current research interests include Molecular and Biological Communications, and 5G and Beyond Wireless Communications Systems. He is recipient of the Early Career Research Award grant from SERB 2016, Visvesvaraya Young Faculty Research Fellowship in 2017 from the Ministry of Electronics and Information Technology, Government of India, and URSI/InRaSS Young Indian Radio Scientist Award 2019.

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