

## **CISTalks**

Time: **2024-11-20T13:00-14:00**

Location: **BBBF-309, Yeditepe University**

Open to the public. All are invited.

# **Molecular Communications: Hype or Real?**

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### **Abstract**

Molecular Communications (MC) is a promising emerging technology that holds immense potential for revolutionizing various domains, including healthcare and engineering. By leveraging the detection of individual molecules and manipulating the physical properties of the molecular waves to transfer information, MC offers unique advantages over traditional electromagnetic (EM) wave-based communications. However, the transition from EM to molecular waves introduces numerous challenges that necessitate a fresh approach from scratch.

In this talk, we will provide an overview of MC, highlighting its current state of development. We will also address the multifaceted challenges, encompassing both technological issues and managerial aspects of a truly interdisciplinary team of researchers. By the end of the talk, we aim to give the audience some take-home messages and spark new ideas to encourage further exploration of this exciting frontier.

### **Biography**

Prof. Tuğcu received his BS and Ph.D. degrees in Computer Engineering from Bogazici University, MS degree in Computer and Information Science from New Jersey Institute of Technology. He was a postdoctoral fellow and visiting professor at Georgia Institute of Technology. He is currently a professor in the Computer Networks Research Laboratory (NETLAB) and Nanonetworking Research Group (NRG) of Bogazici University. His research interests include nanonetworking, molecular communications, and wireless networks. Prof. Tuğcu has served in the NATO Science and

Technology Organization IST104-RTG050 group (Cognitive Radio in NATO – II) and IST-ET-074 group (Network Aspects of Cognitive Radio). He also serves in IEEE P1906.1 Nanoscale and Molecular Communications Working Group, contributing to the “IEEE 1906.1-2015 Recommended Practice for Nanoscale and Molecular Communication

Framework” and “IEEE Standard Data Model for Nanoscale Communication Systems” standard specifications. He is currently an associate editor in IEEE Transactions on Molecular Biological and Multi-scale Communications.