Physics Department Seminar

11 am April 5, 2024 Science Building Room 126

Optical Wireless Communication for Free Space and Underwater Environments: Pathway to Future Connectivity

Dr. Hemani Kaushal

University of North Florida

Optical wireless communication (OWC) utilizes the optical spectrum to establish wireless connections and is emerging as one of the favorite complementary technologies to traditional radio frequency networks for future communication such as 6G and massive Internet-of-Things (IoT).

The vast bandwidth of the optical spectrum holds promise for meeting the capacity demands of these advanced networks. This presentation focuses on research conducted in the field of free space and underwater optical communication. However, the propagation of optical beams through turbulent atmosphere or underwater environments leads to the deterioration of optical signal, affecting the quality and reliability of the communication system. Various techniques to enhance system performance in turbulent environments will be discussed. Additionally, the potential for energy harvesting in space-based applications using this technology will be explored.