

Speaker: Omnia Hamdy Abdelrahman NEMATALLAH (Cairo University, Egypt)

Title: Illuminating Life: Advancements in Biophotonics for Biomedical Applications

Abstract: Biophotonics, the science of light-matter interactions in biological systems, has revolutionized biomedical research and healthcare. By leveraging the unique properties of light, researchers can visualize, diagnose, and even treat diseases in a noninvasive manner. My work focuses on harnessing advanced biophotonics techniques to explore applications ranging from optical tissue characterization and laser-based therapeutics to biosensing and imaging innovations. This talk will provide insights into recent breakthroughs in biophotonics, including laser-assisted medical diagnostics, photonic biosensors for disease detection, and novel light-based therapies. I will also discuss the challenges and future prospects of this dynamic field, emphasizing its growing impact on precision medicine and biomedical engineering.