The Center for
Light Matter Interaction
Tel Aviv University

LMI Seminar:

Nanoplasmonic and nanophotonic active devices

Prof. Uriel Levy

Department of Applied physics and the center for nanoscience and nanotechnology, The Hebrew University of Jerusalem

Wednesday November 9th, 2022

13:00-14:00

Light refreshments and drinks will be served at 12:30

Auditorium 011, Engineering Classroom Building, Faculty of Engineering, Tel-Aviv University

Abstract: We present our recent results related to active nanoplasmonic and nanophotonic devices. Several mechanisms for implementing active devices will be discussed. We will describe the demonstration of tunability in dielectric and metallic metasurfaces for diverse applications using tunability mechanism such as MEMS technology integrated with metasurfaces and the electro optic effect in lithium niobate integrated with metasurfaces, as well as the tunability of a metasurface by controlling an external medium. We also discuss the role of nanoscale structures in enhancing functionalities such as light emission and light detection. Nanophotonic devices with memory functionality will be discussed as well. Finally, we present how metalenses can be used for 3-D imaging.

Bio: Prof. Uriel Levy is the head of the nano-opto lab and the director of the center for nanoscience and nanotechnology at the Hebrew University, Jerusalem Israel. His research spans over diverse aspects of nanophotonics and light-matter interactions, with focus on device oriented research. Over the years, he pioneered several key concepts in nanophotonics, including silicon based photodetection in the short wave infrared (SWIR), nanoscale polarization optics, and the chip scale atomic vapor technology. His research covers both fundamentals of light-matter interactions, as well as diverse applications in imaging, communications, sensing, metrology, energy harvesting, memories, displays and other chip scale optoelectronic devices. Over the years, Prof. Levy published nearly 200 journal papers, presented his results in hundreds of invited talks and he holds dozens of patents. Prof. Levy is a fellow of OPTICA (formerly the optical society of America) and is the recipient of several notable prizes, including for example the Kaye innovation award, an ERC consolidator grant, and the Hebrew University President award for young Investigator. He holds a BSc in Physics and materials science from the Technion and a PhD in electro optics from Tel Aviv University. Prior to joining the Hebrew University, he spent nearly four years as a post graduate researcher in the University of California, San Diego. Prof. Levy is also active in tech transfer. He is a co-founder of Trieye, developing CMOS based cost effective SWIR imaging solutions for the automotive industry and for other verticals