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Metamaterial based nanobiosensors and nanophotodetectors

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In this talk, we will present how metamaterials can be used for nanobiosensors and nanophotode-tector applications. We will present a label-free, optical nano-biosensor based on the Localized Surface Plasmon Resonance (LSPR) effect that is observed at the metal-dielectric interface of sil-ver nano-cylinder arrays located periodically on a sapphire substrate by E-Beam Lithography (EBL), which provides high resolution and flexibility in patterning. We will also report on UV plasmonic antenna integrated metal semiconductor metal (MSM) photodetectors based on GaN. We also report the design, fabrication, and measurement of a device comprising a split-ring resonator array on epitaxial graphene.

Biography

Ekmel Ozbay received MS and PhD degrees from Stanford University in Electrical Engineering, in 1989 and 1992. He worked as a Post-doctoral Research Associate in Stanford University and as a Scientist in Iowa State University. He joined Bilkent University (Ankara, Turkey) in 1995, where he is currently a Full Professor in Department of Electrical-Electronics Engineering. He is the Director of Bilkent University Nanotechnology Research Center. His research in Bilkent involves nanophotonics, nanometamaterials, nanoelectronics, nanoplasmonics, nanodevices, photonic crystals, GaN/AlGaN MOCVD growth, fabrication and characterization of GaN based devices and high speed optoelectronics.

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