Carbon nanomaterials, such as graphene and carbon nanotubes, offer unparalleled opportunities for next generation electronic and optoelectronic devices which not only have smaller sizes but often exhibit unique functionalities. The research in our group aims at exploiting material properties and device applications enabled uniquely by these low dimensional carbon nanomaterials. In this talk, I will discuss our group’s recent works on these fascinating nanomaterials. Topics will include: 1) synthesis of wafer scale homogeneous bilayer graphene films; 2) investigation of photocarrier generation and extraction on graphene optoelectronic devices using scanning photocurrent spectroscopy; 3) all-graphene based flexible and transparent circuits for digital modulation; 4) high frequency carbon nanoelectronic sensors.

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