## PLASMONICS FOR NANOSCALE LIGHT-MATTER INTERACTION

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Well-designed plasmonic nanostructures can concentrate and control optical fields at nanometer scale [1] and provide stiff optical potential to manipulate nanoobjects [2]. Recently, it has been shown that optical near fields can be designed to selectively enhance the typically weak circular dichroism (CD) of chiral molecules [3]. In this talk, I will present recent progress in my research group, including (1) Surface plasmon-enhanced circular dichroism; (2) Optical manipulation of particles using well-designed plasmonic optical near fields; and (3) Plasmonic Doppler grating for sensing. Other latest research progress on several different related topics, including mode conversion in optical nanocircuits [4] and plasmonic solar cells [5] will also be given if time is sufficient.

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