Plasmonic Antenna Based Nanosensor

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Noble metal nanostructures normally show strong resonant behaviors in optical regime and function as optical antennas, which localize and enhance the light in their near-field zone. This property makes metal nanostructures good candidates for building ultrasensitive sensors. Generally, there are two type of sensing methods: (1) by monitoring the frequency shift of the localized plasmon resonance (LPR) and (2) by using the enhanced Raman signal of the analytes. In this work, we investigate these two different sensing methods with plasmonic dipole antennas theoretically and experimentally.