

# **Order of Magnitude Enhancement of Surface Electric Field Intensity with Large Wave Vector Resonances in Plasmonic Structures**

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Surface plasmons (SP) are electromagnetic (EM) modes strongly coupled to collective oscillations of free-electrons at the interface of conductive materials. They enable the confinement of EM fields into subwavelength volumes with strong local field enhancement. These properties can be exploited to increase light-matter interactions at the subwavelength scale, leading to a wide range of intriguing applications such as active plasmonic devices, biosensing, and surface-enhanced spectroscopy. Over the last thirty years, there has been intense interest to enhance the electric field on surfaces with plasmonics ideas. The electric field close to a sharp corner can be strongly enhanced, as for example, with nanoparticles and with bow-tie structures, but these are over a small area. For practical applications, it is important that the average field intensity averaged over the whole surface be enhanced. In this talk, the speaker will discuss an explicit example of how this average can be increased by orders of magnitude with surface resonances of large wave vectors, which is useful for a wide range of applications.