**Numerical methods for light scattering problems in plasmonic structures**

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Plasmonic structures are commonly made of dielectrics and metals. At optical frequencies metals exhibit unusual electromagnetic properties like a dielectric permittivity with a negative real part whereas dielectrics have a positive one. This configuration allows the propagation of electromagnetic surface waves strongly oscillating at the metal-dielectric interface, and hyper-oscillating if the interface presents corners. Standard numerical methods to study surface plasmons excitation do not always take into account the multiple scales inherent in electromagnetic problems which may lead to inaccurate predictions. In this presentation we present some techniques to accurately compute and efficiently take into account the multiple scales of 2D light scattering problems in plasmonic structures with corners, in the time-harmonic regime. We will discuss the underlying limiting amplitude principle at the end.