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Room 220, Lady Shaw Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Colloquium

Anomalous scattering of light by slit structures in metallic slabs

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Abstract

Since the discovery of the extraordinary optical transmission through nanohole arrays in metallic films by Ebbesen, a wealth of research has been sparked in the experimental and theoretical investigation of the localized electromagnetic field enhancement and the optical transmission enhancement in subwavelength nanostructures. This remarkable phenomenon can lead to potentially significant applications in near-field imaging, bio-sensing, etc. However, there has been a long debate on the interpretation of the enhancement effect since Ebbesen's work. In addition, a quantitative analysis of the enhancement is still widely open. In this talk, using two-dimensional slits as a prototype, I will present mathematical studies of both the field enhancement and transmission enhancement in the subwavelength structures. Based upon the layer potential technique, asymptotic analysis and homogenization theory, the enhancement mechanisms for both the single slit and an array of slits are studied quantitatively.

Date: 13 April 2018 (Friday)
Time: 4:30pm – 5:30pm
Venue: Room C3, Lady Shaw Building,
The Chinese University of Hong Kong, Shatin

All are Welcome