

Abstract Submitted  
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**Optical properties of subwavelength plasmonic structures** ZHU YONGYUAN, Nanjing University — Some recent progress achieved in our group will be reported here, focusing on the optical properties of subwavelength holes and metallic particles. By dressing the periodic holes with the metallic components, new transmission features, such as the enhanced transmission due to the magnetic resonance, the peak splitting due to the hole symmetry breaking etc. can be obtained. With the multilayer slit gratings, the transmission resonance associated with the longitudinal interference effect as well as the tuning of spectrum by the temperature control have been realized. In addition, the plasmon resonance of isolated gold nanorod particles and the plasmonic waveguiding using a linear chain of nanorod particles have been studied. In addition, due to the strong coupling between the incident light and vibrations of free electrons, a bulk polariton mode can be induced in a plasmonic crystal composed of gold nanorod particles. The fundamental equations governing the coupling have been developed and the long-wavelength optical properties of the crystal have been suggested.

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