



東工大 基礎・物性物理学専攻「物理学リーダーシップ」
 FGIP: Foreign Graduate Student Invitation Program
 外国人博士課程大学院生の短期招待・共同研究
 FGIP-Student Forum セミナー

Yavaş Özlem (Bilkent University, Turkey)

日時: 2012年2月7日(火) 13:30 ~ 14:30

場所: 南5号館 411号室(会議室)



Subwavelength Plasmon Interferometer for High-Throughput Sensing

Abstract: Small detection volume, increased analysis speed and reduced cost are the main driving forces for miniaturized lab-on-a-chip systems. Sub-wavelength holes on opaque metal films provide unique configuration for miniaturized sensors. Transmitted light through these tiny holes is governed by the electronic resonance in the surface of the metal film. Excitation of surface plasmon-polaritons (SPPs) on the metal-dielectric interface characterizes the resonance condition. The sensitive dependence of the plasmon resonance condition on the dielectric constant of the medium can be used for label free sensing applications. Surface plasmon resonance sensors (SPR) are widely used to measure biomolecular interactions on functionalized metal surfaces. Different types of SPR sensors have been proposed to increase the detection sensitivity.

Recently, plasmon interferometers received attention due to their small detection volume and large sensitivity. Different combinations of parallel grooves and slits generate spectral interference. Measuring the spectrum of the transmitted light provides sensitive methods for label free sensing. Due to requirement of a tunable light source or a spectrometer, multispectral sensors are not very practical for high throughput applications.

In this talk, I will present a refractive index sensor based on a subwavelength plasmon interferometer that consists of slit groove pair, that is etched on a gold film, with a small angle between them, which provides a simpler technique to excite SPPs and detect the refractive index of the medium.

教員、修士課程大学院生の参加も歓迎します。 担当 田原 弘量 (内線2446)

FGIP-Guest student の滞在スケジュール

名前	大学	滞在期間	受入担当氏名
Can Kadir Utku	Middle East Technical University (トルコ)	1/30-2/25	内野俊隆
Yavaş Özlem	Bilkent University (トルコ)	1/30-2/25	田原弘量
Remoto Alberto	Universite de Nantes (フランス)	2/1-2/17	今野智之