Contribution ID: **249** Type: **Oral presentaion**

Surface Plasmon Resonance Refractometers Based on Smart Phone Platforms

Wednesday 8 June 2016 12:15 (15 minutes)

Abstract

Herein we demonstrate the surface plasmon resonance (SPR) refractometers based on smart phone platforms. The optical element used in this system is a single disposable device, which is configures to use conditioned illumination and optical detection from smart phone cameras. The SPR sensing element is fabricated by a soda lime glass slide coated with 50 nm gold film covered by the custom made epoxy resin flow cell. The performance of the smart phone-base SPR refractometers was evaluated by detecting the ethanol/water solutions with different concentrations ranging from 0% to 40% with 10% interval. The results demonstrate that our smart phone-base SPR refractometers is feasible to measure the refractive index of liquid sample and offer an attractive possibility in many applications such as health and environment monitoring.

Keywords: Surface plasmon resonance, Sensor, Optical sensing, Refractometer, Mobile Phone

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Author: Ms BOONCHUAY, Sawanya (Department of Physics, Faculty of Science and Technology, Thammasat University)

Co-authors: Dr PREECHABURANA, Pakorn (Department of Physics, Faculty of Science and Technology, Thammasat University); Dr AMLOY, Supaluck (Department of Physics, Faculty of Science, Thaksin University)

Presenter: Ms BOONCHUAY, Sawanya (Department of Physics, Faculty of Science and Technology, Thammasat University)

Session Classification: session II

Track Classification: Optics, Non-linear Optics, Laser Physics, Ultrafast Phenomena