PROGRAM BOOK

WC 2006

WC 2006

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"Imaging the Future Medicine"

The Triennial World Congress of IUPESM
The 15th ICMP of IOMP
The 21st ICMBE of IFMBE

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T7 Poster Session (continued) Exhibition Hall

Presenting Time: 10:30 - 11:00 / 14:10 - 14:40

2806. Recognizing Objects Regardless of Viewing Angles Enlarges the Difference Across the ERP Component N1 Amplitudes Evoked by the Objects
Gang Wang, K. Suemitsu, H. Nomoto

2807. Automatic Classification of Lung Sounds
Fumimaro Kondou, Akifumi Suzuki

2808. Extracting Characteristic Feature of a Inert Region from EEG
Masato Katayama, Masatake Akutagawa, Yoshio Kaji, Fumio Shichijo, Hirofumi Nagashino, Yohsuke Kinouchi

2809. Estimation of the Territory and Location of Single Motor Unit
Jun Akazawa, Tetsuo Sato, Kotaro Minato, Masaki Yoshida

2810. EEG Analysis using Neural Networks to Detect Changes of Brain Conditions during Operations
Yoshio Kaji, M. Akutagawa, F. Shichijo, H. Nagashino, Y. Kinouchi, S. Nagahiro

2811. Noise reduction of Photoplethysmograph in Free Movements Using Adaptive SFLC(Scaled Fourier Linear Combiner)
Soochan Kim, E.J Hwang, D.W. Kim

2812. A Development and Clinical Evaluation of Automated Diagnostic Algorithm for Atrial Fibrillation using 12-Lead ECG
Hyun Ok Lee, Sang Joon Lee, Seok Hoon Jeong, Yong Ho Cho, John Jang, Dong Wook Kim, Jong Min Lee, Jeong Gwan Cho

2813. Obstructive Apnea Events Detection in Nasal Airflow Signal using Slope Analysis and Normal Breathing Estimation
Jonghee Han, Hong-Beom Shin, Do-Un Jeong, Kwangsuk Park

2814. Analysis on How Action Potentials of Cells in Aplysia Julianas¡¯ and Abdonimal Ganglia Change According to Temperature
Nam Gyu Hyun, Kwang Ho Hyun, Kwang Bum Hyun, Youn Sook Kang

T8 Poster Session Exhibition Hall

Presenting Time: 10:30 - 11:00 / 14:10 - 14:40

2952. Gingival Fibramotosis
Jerzy Jankowski, Anna Janas, Grazyna Grzesiak-Janas

2953. The New European Directive on Optical Radiation Casts its Shadow on Medical Practice using Lasers for Diagnostic, Therapeutic and Surgical Purposes
Hans-Dieter Reidenbach Dr

2954. Quantification of Microscale Cell Culture Analog Devices using Photodiodes: a Feasibility Study
Taek-il Oh, Donghyun Kim, Daniel Tatosian, Michael Shuler

2955. A Feasibility Study of Depth-Resolved Tomography using Angle Scanning Total Internal Reflection Fluorescence Based Microscopy
Kyujung Kim, Donghyun Kim

2911. Acute Changes of Tumor Oxidative Metabolism, Permeability, and Energy Status in Response to a Novel Chemotherapy Drug
Ulas Sunar, Chao Zhou, Turgut Durduran, Guqiang Yu, Arjun Yodh, Intae Lee

2930. Attention-Induced Frontal Brain Activation in Adolescents Using Near-Infrared Imaging
Yonghong Zhang, Xiaofei Fan, Jiacheng Liu, Jing Bai, Miao Peng, Lan Shuai, Yufeng Wang

2956. Spectroscopy of Intensity Fluctuations of Cell Dynamics, Tissue Reflectance and Auto-Fluorescence
Svetlana Norina, J. Kim, J.-M. Yang, K.-S. Soh

2912. Early Metabolic Responses of Head and Neck Tumors to Chemo-Radiation Therapy Assessed by Diffuse Optical Spectroscopy: Case Study with MRI
Ulas Sunar, S. Kim, R. Choe, H. Poptani, H. Quon, T. Durduran, C. Zhou, G. Yu, A. Kilger, B. Lustig, L. Loevner, S. Nioka, B. Chance, A. Yodh

2957. Monte Carlo Simulation and Optical Characterization of a Nanoparticle-Embedded Turbid Medium
Seyoung Moon, Eunji Sim, Donghyun Kim

2958. Impact of the Surface Fluctuation of a Nanowire-Based Surface Plasmon Resonance Biosensor on the Sensitivity Enhancement
Kyung Min Byun, Sung June Kim, Donghyun Kim

Impact of the Surface Fluctuation of a Nanowire-Based Surface Plasmon Resonance Biosensor on the Sensitivity Enhancement

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Theoretical and experimental studies have shown that the excitation of localized surface plasmons (LSPs) confined to nanowires induces the sensitivity enhancement of surface plasmon resonance (SPR) biosensors by one or two orders of magnitude compared to a conventional SPR biosensor. In an actual nanowire-based SPR biosensor, however, the surface fluctuation of a substrate and thin films may affect the properties of excited surface plasmons and degrade the sensitivity. This work investigates the impact of the surface fluctuation on the sensitivity by modeling metallic nanowires on a rough surface as the sum of periodic rectangular gratings and one-dimensional Gaussian random profiles. Two important parameters are the rms height deviation and the correlation length of the surface profile. The parameters are frequently used to describe random Gaussian rough surfaces and have been determined by atomic force microscopy measurements of glass substrates. The results clearly indicate that with the increase of the Gaussian random fluctuation in the nanowire profile, LSP modes become less dominant and the sensitivity improvement degenerates. As the surface profile approaches thoroughly random Gaussian, the effect of excited LSP modes becomes insignificant and the sensitivity of a nanowire-based SPR biosensor resembles that of a conventional SPR biosensor with a perfectly flat surface.

Keywords : Surface Plasmon Resonance, Sensitivity Enhancement, Gaussian Random Rough Surfaces