平成 30 年 2 月 9 日
応用物理学会北海道支部　会員各位

応用物理学会北海道支部講演会のお知らせ

下記講演会を開催いたしますので、多数ご参加下さいますようご案内申し上げます。

演題：Thermal Lens Spectrometry: Novel Approaches for New Discoveries in Life Sciences
講師：Mladen Franko 氏
（University of Nova Gorica, Nova Gorica, Slovenia・教授）
日時：平成 30 年 3 月 9 日（金）　13:00～14:00
場所：北海道大学工学部応用物理学専攻会議室　（A3-62）
主催：応用物理学会北海道支部

講演の要旨

Over the past decade development and applications of thermal lens spectrometry (TLS), as an ultrasensitive analytical technique, have resulted in important progress in the field of biomedical diagnostics and in new discoveries in life sciences. Coupling of TLS and thermal lens microscopy (TLM) to microchip technologies and micro and nanofluidics as well as to liquid chromatography (e.g. HPLC), has overcome the limitations of TLS and TLM posed primarily by poor selectivity. This has led to development of novel high throughput analytical tools for fast screening of large sets of samples on one side and highly sensitive and selective analytical techniques such as HPLC-TLS. Further advances were made by applying magnetic nanoparticles as support material for immobilization of various biomolecules and their assemblies (enzymes, antibodies, pseudovirions) in microfluidic chips. It was demonstrated that different biomarkers (NGAL, cholinesterases, HPV-antibodies) and bioactive compo
unds (bilirubin, biliverdin) can be accurately detected and quantified at ultra-trace levels in biological fluids, by utilizing microfluidics with TLM or HPLC-TLS. Besides the just mentioned applications and advances in TLS and TLM instrumentation, the recent discovery of endogenous bilirubin in vascular endothelial cells will be presented and discussed in terms of possible enhancement of antioxidant activity of endothelium and related protection against cardiovascular disease.

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