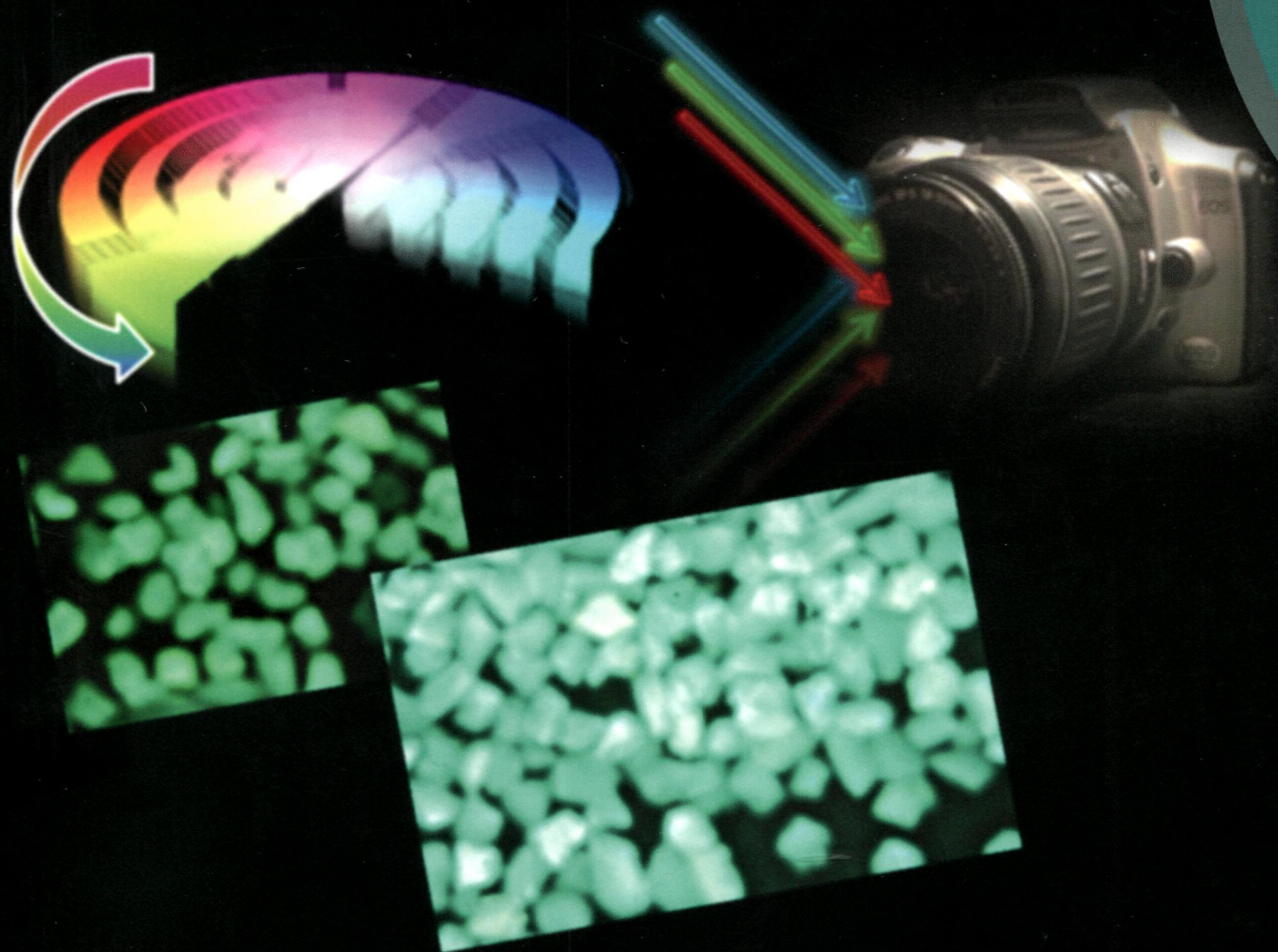


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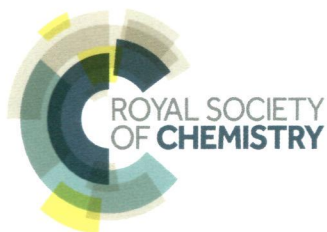
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# Analyst

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**COMMUNICATION**

Aron Hakonen *et al.*

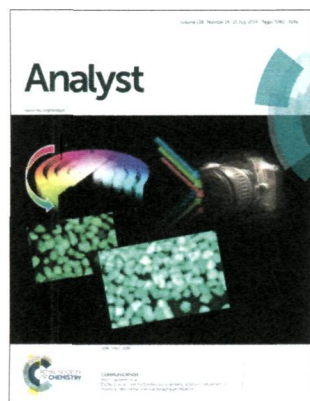
Digital colour tone for fluorescence sensing: a direct comparison of intensity, ratiometric and hue based quantification

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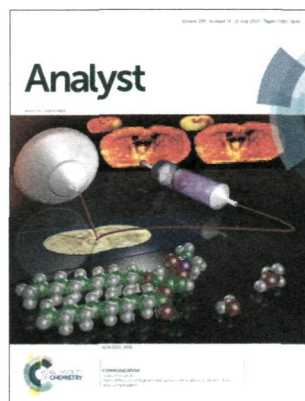
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## IN THIS ISSUE

ISSN 0003-2654 CODEN ANALAO 139(14) 3483–3646 (2014)



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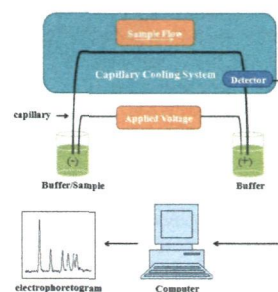
## MINIREVIEW

3492

### Capillary electrophoresis based on the nucleic acid detection in the application of cancer diagnosis and therapy

Dong-Sheng Lian\* and Shu-Jin Zhao\*

This review focuses on capillary electrophoresis-based nucleic acid detection as it is applied to cancer diagnosis and therapy, and provides an introduction to the drawbacks and future developments of analysis with CE.



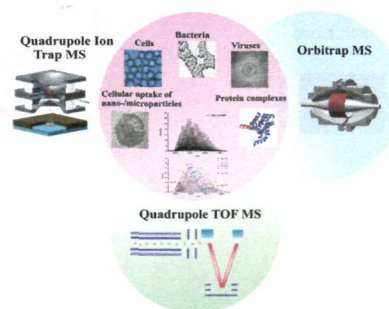
## CRITICAL REVIEW

3507

### Measuring masses of large biomolecules and bioparticles using mass spectrometric techniques

Wen-Ping Peng,\* Szu-Wei Chou and Avinash A. Patil

Mass spectrometric techniques can measure the masses and fragments of large biomolecules and bioparticles.



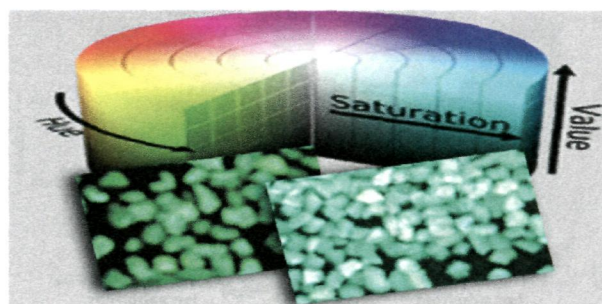
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Уральского отделения  
Российской академии наук (ЦНБ УрО РАН)

3524

### Digital colour tone for fluorescence sensing: a direct comparison of intensity, ratiometric and hue based quantification

Aron Hakonen,\* Jonathon E. Beves and Niklas Strömberg

Standard digital cameras combined with hue-parameter photostcopy demonstrate simple yet superior and high-performance quantitative fluorescence sensing and imaging of pH.

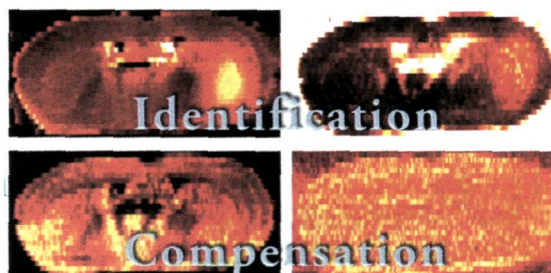


3528

### Matrix effects in biological mass spectrometry imaging: identification and compensation

Ingela Lanekoff, Susan L. Stevens, Mary P. Stenzel-Poore and Julia Laskin\*

Matrix effects in mass spectrometry imaging (MSI) may affect the observed molecular distribution in chemical and biological systems.

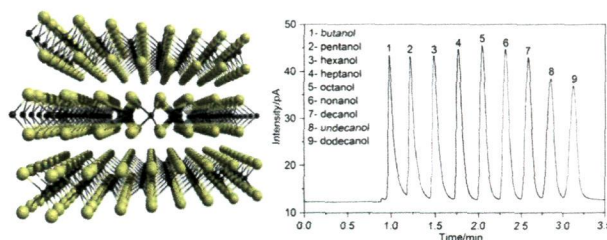


3533

### Two-dimensional MoS<sub>2</sub> nanosheets as a capillary GC stationary phase for highly effective molecular screening

Jia Jia, Fujian Xu, Shanling Wang, Xue Jiang, Zhou Long\* and Xiandeng Hou\*

Stable layered MoS<sub>2</sub> nanosheets were employed for the first time as a stationary phase in gas chromatography and exhibited excellent separation behaviour.

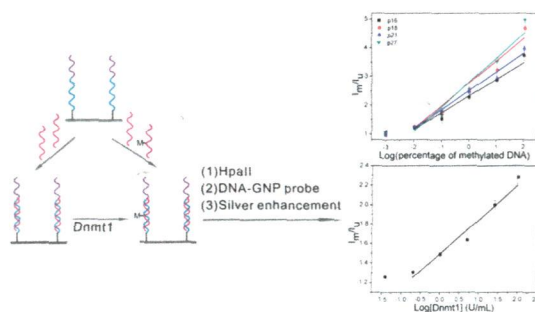


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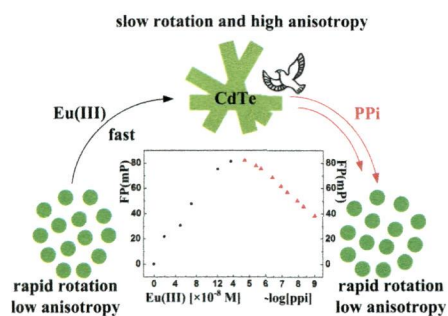
### Microarray-based resonance light scattering assay for detecting DNA methylation and human DNA methyltransferase simultaneously with high sensitivity

Lan Ma, Min Su, Tao Li and Zhenxin Wang\*

A microarray-based resonance light scattering assay has been proposed for sensitively detecting DNA methylation and DNA methyltransferase.



3541

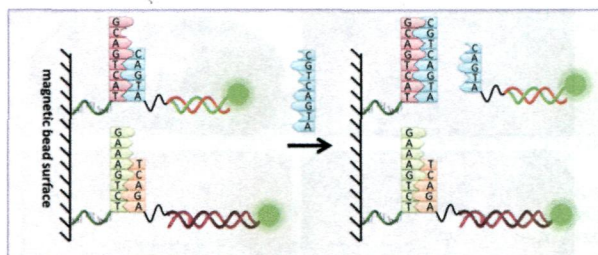


### Label-free fluorescence polarization detection of pyrophosphate based on 0D/1D fast transformation of CdTe nanostructures

Jinyan Du, Li Ye, Meili Ding, Yuting Chen, Shujuan Zhuo and Changqing Zhu\*

A novel and label-free fluorescence polarization method for detecting PPI is constructed based on 0D/1D fast transformation of CdTe nanostructures.

3548



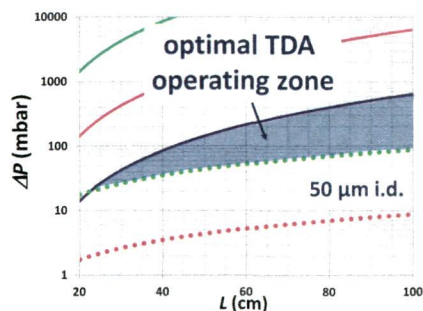
### Sequence selective capture, release and analysis of DNA using a magnetic microbead-assisted toehold-mediated DNA strand displacement reaction

Dmitriy A. Khodakov,\* Anastasia S. Khodakova, Adrian Linacre and Amanda V. Ellis\*

Oligonucleotide modified magnetic beads for the selective capture and release of forensically relevant genes for human identification.

## PAPERS

3552

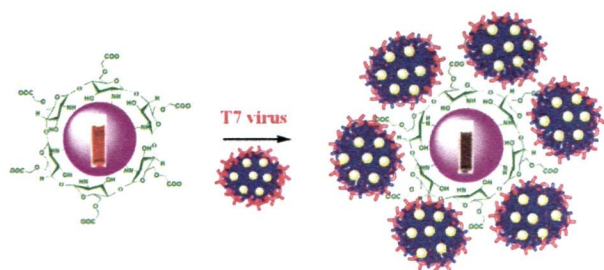


### On the optimization of operating conditions for Taylor dispersion analysis of mixtures

Hervé Cottet,\* Jean-Philippe Biron and Michel Martin

In this work, we investigate the possibility of optimizing the operating conditions, namely mobilizing pressure, capillary length and capillary radius, for performing Taylor dispersion analysis on solutes having hydrodynamic diameters between 1 and 100 nm.

3563



### T7 bacteriophage induced changes of gold nanoparticle morphology: biopolymer capped gold nanoparticles as versatile probes for sensitive plasmonic biosensors

Palanisamy Kannan, Marcin Los, Joanna M. Los and Joanna Niedziolka-Jonsson\*

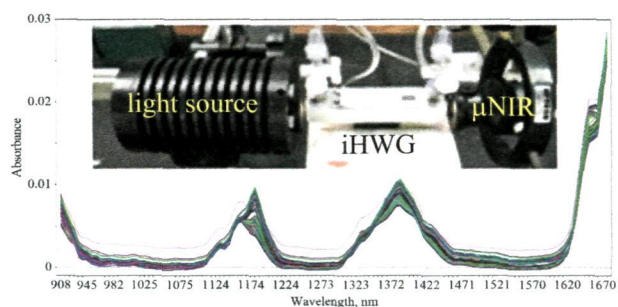
The morphological changes of gold nanoparticles induced by T7 virus (bacteriophage) and the determination of its femtomolar concentration by a plasmonic method are presented.

3572

### iHWG- $\mu$ NIR: a miniaturised near-infrared gas sensor based on substrate-integrated hollow waveguides coupled to a micro-NIR-spectrophotometer

J. J. R. Rohwedder, C. Pasquini, P. R. Fortes, I. M. Raimundo Jr,\* A. Wilk and B. Mizaikoff

A compact gas analyser based on a substrate-integrated hollow waveguide (iHWG) combined with a MicroNIR spectrophotometer is demonstrated for the first time.

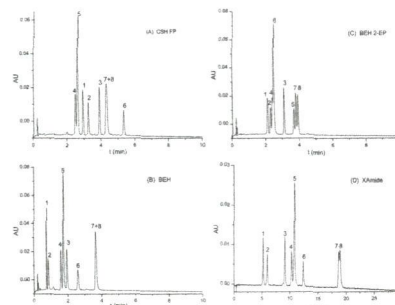


3577

### Alkaloids analysis using off-line two-dimensional supercritical fluid chromatography $\times$ ultra-high performance liquid chromatography

Kuiyong Li, Qing Fu, Huaxia Xin, Yanxiong Ke, Yu Jin\* and Xinmiao Liang\*

2-D SFC  $\times$  UHPLC method with high orthogonality for analysis of the amide alkaloids fraction of *P. longum* L.

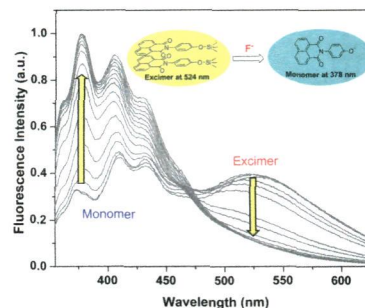


3588

### Excimer–monomer switch: a reaction-based approach for selective detection of fluoride

Qiao Song, Angela Bamesberger, Lingyun Yang, Haley Houtwed and Haishi Cao\*

Desilylation triggered excimer–monomer switch based on 1,8-naphthalimide was used as a sensing strategy for detection of fluoride.

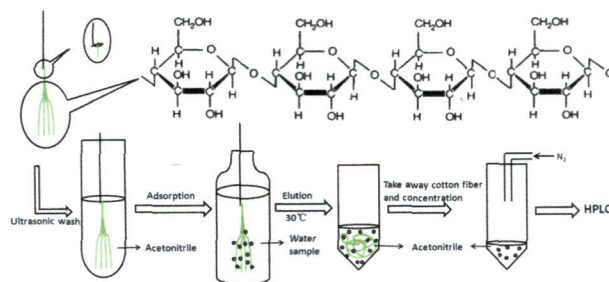


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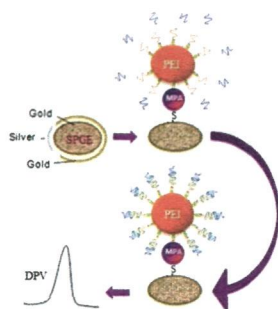
### Natural cotton fibers as adsorbent for solid-phase extraction of polycyclic aromatic hydrocarbons in water samples

Jianping Wang, Shengquan Liu, Chunyan Chen, Ying Zou, Huiping Hu, Qingyun Cai\* and Shouzhao Yao\*

A natural material, cotton fiber, has been applied as a solid-phase extraction (SPE) adsorbent for sample preparation for the analysis of polycyclic aromatic hydrocarbons (PAH) in water samples using high-performance liquid chromatography.



3600

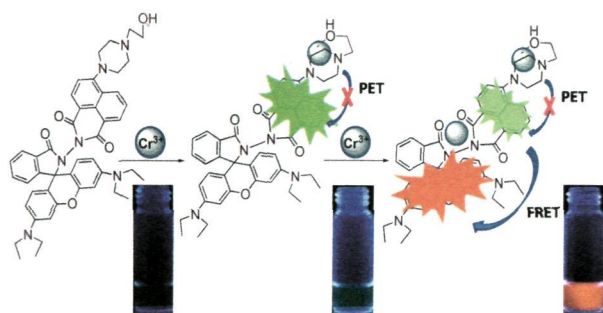


### Gold–mercaptopyronic acid–polyethylenimine composite based DNA sensor for early detection of rheumatic heart disease

Swati Singh, Ankur Kaushal, Shashi Khare, Pradeep Kumar and Ashok Kumar\*

A novel first DNA sensor for the detection of *S. pyogenes* pathogen causing rheumatic heart disease only in 30 min.

3607

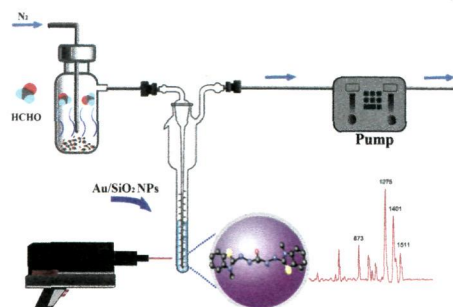


### A novel dual-switch fluorescent probe for Cr(III) ion based on PET–FRET processes

Fangzhi Hu, Baozhan Zheng, Dongmei Wang, Maoping Liu, Juan Du\* and Dan Xiao\*

Two different strategies for photoinduced electron transfer (PET) and fluorescence resonance energy transfer (FRET) have been designed and combined into one sensing system.

3614

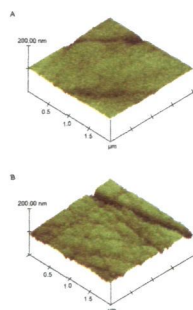


### Rapid analysis of trace volatile formaldehyde in aquatic products by derivatization reaction-based surface enhanced Raman spectroscopy

Zhuomin Zhang,\* Cheng Zhao, Yunjian Ma and Gongke Li\*

Toxic formaldehyde is sometimes used illegally as a food preservative, however, on-site rapid analysis of trace formaldehyde in aquatic products remains a challenge.

3622



### Voltammetric determination of TBHQ at a glassy carbon electrode surface activated by *in situ* chemical oxidation

Zhen Wang, Feng Yang, Hao Zheng, Xianjing Qin, Jiaojiao Luo, Yue Li and Dan Xiao\*

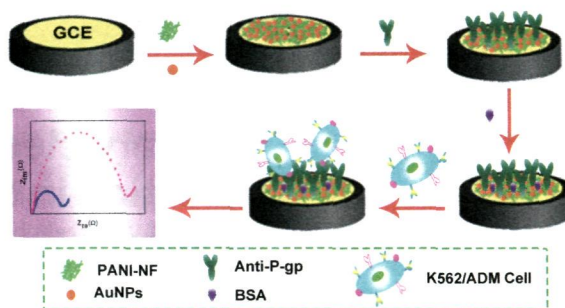
Bare GCE surface is directly activated by *in situ* chemical method, and the modified GCE exhibits a rougher surface and a negative-charge characteristic.

3629

### An efficient nanomaterial-based electrochemical biosensor for sensitive recognition of drug-resistant leukemia cells

Shaolian Zhang, Lu Zhang, Xi Zhang, Peihui Yang\* and Jiye Cai

A simple and efficient strategy for the sensitivity recognition of drug-resistant leukemia cells based on gold nanoparticles/polyaniline nanofibers was constructed.



3636

### Design and development of heterologous competitive immunoassays for the determination of boscalid residues

Francesc A. Esteve-Turrillas, Josep V. Mercader, Consuelo Agulló, Javier Marzo, Antonio Abad-Somovilla and Antonio Abad-Fuentes\*

Antibodies and protein–hapten conjugates from novel boscalid derivatives were used to set up competitive immunoassays enabling sensitive detection of this modern fungicide.

