

# **15th International Conference on Detection Technologies 2009**

## **New Developments in Identification of Microorganisms and Chemicals**

**Documentation**

**Washington, DC, USA  
5 - 6 November 2009**

**ISBN: 978-1-61738-195-9**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2009) by the Knowledge Foundation  
All rights reserved.

Printed by Curran Associates, Inc. (2010)

For permission requests, please contact the Knowledge Foundation  
at the address below.

Knowledge Foundation  
18 Webster Street  
Brookline, Massachusetts 02446-4938

Phone: (617) 232-7400

Fax: (617) 232-9171

[custserv@knowledgefoundation.com](mailto:custserv@knowledgefoundation.com)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>Cowpea Mosaic Virus Nano-scaffold as Signal Enhancement for DNA Microarrays</b> .....	1
<i>C. M. Soto</i>	
<b>An Integrated System for Diagnostics Using Nano-Particles for DNA Purification and Nano-scale Metal-DNA Wires for Detection</b> .....	31
<i>M. Connolly</i>	
<b>Nanocavity Biochemical Sensor</b> .....	63
<i>M. J. Naughton</i>	
<b>Rapid Discovery of Synthetic Antibodies for Nanoengineering of Reagentless Assays</b> .....	80
<i>A. N. Asanov</i>	
<b>Nanostructured Porous Material Preconcentrators</b> .....	111
<i>J. Xu</i>	
<b>Magnetic Glyco-nanoparticles, a Unique Tool for In Vitro and In Vivo Detection</b> .....	139
<i>X. Huang</i>	
<b>Bacteriophage and Qdot Nanocrystals Combo for Pathogen Detection</b> .....	173
<i>C. D. Atreya</i>	
<b>Rapid Detection of Botulinum Neurotoxins Using Magnetic Nanoparticles-based Magnetic Separation Coupled with Optical Immunoassay</b> .....	193
<i>G. Rajaseger</i>	
<b>Department of Homeland Security Next Generation Biological Detection Program</b> .....	221
<i>N. A. Olson</i>	
<b>Immunological Reagents for Detection</b> .....	243
<i>J. P. Carney</i>	
<b>Multiphasic Approach to Detection and Characterization of Viral and Other Pathogens</b> .....	262
<i>K. Langenbach</i>	
<b>Low-cost Point-of-Care Device for Infectious Disease Pathogen Panel Assays</b> .....	297
<i>M. J. Lochhead</i>	
<b>Rapid Point-of-care Detection System for Infectious Diseases</b> .....	334
<i>J. Clarkson</i>	
<b>Sniper Sequencing for the Identification and Characterization of Pathogens</b> .....	355
<i>R. P. Schaudies</i>	
<b>Opportunities for Novel Nucleic Acid Detection with Sequence-specific SCODaphoresis</b> .....	381
<i>A. Marziali</i>	
<b>Developing a Simple and Cost-effective Molecular Diagnostic System by Using Helicase Enzyme</b> .....	405
<i>T. Ranalli</i>	
<b>Simple Format, Field-ready Molecular Lock NATs</b> .....	434
<i>S. Weininger</i>	
<b>Department of Commerce Export Control Technological Procedures Related to Biological Agents and Equipment</b> .....	462
<i>K. Orr</i>	
<b>Low Cost, LED-based xMAP Analyzer for Multiplexed Diagnosis and Environmental Detection of Biological Agents</b> .....	506
<i>A. L. Altman</i>	
<b>Portable and Handheld TIRF-EC Biosensors for Rapid and Accurate Point-of-care Diagnostics</b> .....	530
<i>A. N. Asanov</i>	
<b>Parallume: A Bead-based, Assay-Neutral Optical Encoding Platform for the Low Cost Multiplex Detection of Analytes</b> .....	572
<i>B. Baxter</i>	
<b>Development of Liquid Crystal Based Sensors for Biodetection</b> .....	603
<i>R. S. Schifreen</i>	
<b>Comprehensive CBR Agent Building Protection for Critical Building Applications</b> .....	620
<i>T. D. Stickler</i>	
<b>Alternative Method for Biological Airborne Agents Detection in Only Few Hours / Innovative Microbial Air Sampler</b> .....	647
<i>A. Duval</i>	
<b>Portable Vapor Generator for the Calibration and Test of Chemical Sensors</b> .....	669
<i>D. J. Hayes</i>	

<b>Thermoplastic Microfluidics and Microwell Device Fabrication</b> .....	706
<i>S. MacGillivray</i>	
<b>Universal Sample Processing for Nucleic Acid and Immunological Based Detection</b> .....	731
<i>N/A</i>	
<b>Validation of the Bioseeq PLUS, a Man-portable Field Deployable Biological Warfare Agent Identifier</b> .....	
<i>J. Link, D. Carmany, M. Retford, K. Hubbard, A. Chambers, T. Sickler, J. Hazel, I. Fry</i>	
<b>Sequence Specific Extraction and Detection of Nucleic Acids in a Single Process</b> .....	733
<i>J. Pel, J. Thompson, D. Gunn, P. Eugster, D. Broemeling, I. Isbasescu, A. Marziali</i>	
<b>Rapid Detection of Botulinum Neurotoxins Using Magnetic Nanoparticles-based Magnetic Separation Coupled with Optical Immunoassay</b> .....	
<i>G. Rajaseger, P. Saravanan, Z. Z. Lewis, E. P. Yap, S. Moochhala, P. Gopalakrishnakone</i>	
<b>Removal of PCR Inhibitors During DNA Extraction from Blood Samples Utilizing PrepFiler™ / PrepSEQ™ Chemistry Versus Spin Column Technology</b> .....	735
<i>J. Ragan, M. Brevnov, M. Furtado</i>	
<b>Random Micro-confinement of Bacteria into Picolitre Polydisperse Droplets for Rapid Enzymatic Activity Determination and Detection</b> .....	736
<i>M. Dupoy, R. Mathey, P. Joly, P. Marcoux, J. P. Moy, F. Mallard, A. N. Rousseau</i>	
<b>Author Index</b>	