

Technology transfer at its best  
Get in touch with science and industry  
Discover new trends in bioanalysis

3<sup>rd</sup> Public Status Seminar "Lab in a Hankie"  
4<sup>th</sup> Potsdam Colloquium on Bioanalysis

# Potsdam Days on Bioanalysis 2012

November 7<sup>th</sup> and 8<sup>th</sup>  
Fraunhofer Institute for Biomedical Engineering IBMT  
Am Mühlenberg 13 · 14476 Potsdam · Germany

 **Fraunhofer**  
IBMT

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Zentrum für  
Molekulare Diagnostik  
und Bioanalytik

Potsdam Days on Bioanalysis 2012

November 7<sup>th</sup> and 8<sup>th</sup>

Organized by:



In cooperation with:



Supported by:



The Project „Das Taschentuchlabor - Impulszentrum für Integrierte Bioanalyse“ is sponsored by the Federal Ministry of Education and Research through the initiative „Spitzenforschung und Innovation in den neuen Ländern“.



SPITZENFORSCHUNG & INNOVATION  
IN DEN NEUEN LÄNDERN



The Center for Molecular Diagnostics and Bioanalysis (ZMDB) is a Flagship Project of the Joint Innovation Strategy Berlin-Brandenburg at the TSB Innovationsagentur Berlin GmbH. The ZMDB is funded by the states of Berlin and Brandenburg and co-financed by the European Regional Development Fund (ERDF) of the European Union. An investment in your future!

## Potsdam Days on Bioanalysis 2012

Vor dem Hintergrund der rasanten technologischen Entwicklungen gewinnt die Bioanalytik zunehmend an Bedeutung. Retrospektive Verfahren werden durch neuere, prospektive abgelöst. Zusätzlich eröffnen Kombinationen unterschiedlicher Einzelverfahren immer wieder neue Möglichkeiten für analytische Anwendungen.

Die bioanalytische Forschung und Entwicklung wird in der Region Berlin-Brandenburg von rund 20 Forschungseinrichtungen und über 80 kleinen und mittleren Unternehmen (KMU) vorangetrieben. Unterstützt durch das Zentrum für Molekulare Diagnostik und Bioanalytik (ZMDB) sind Kooperationen zwischen Wissenschaft und Wirtschaft entstanden, durch die neuartige, bioanalytische Methoden, wie autonome Biosensoren, optische Sensor-Arrays und prädiktive Immunoassays, entwickelt werden. Das ZMDB und das Fraunhofer-Institut für Biomedizinische Technik IBMT veranstalten daher in diesem Jahr bereits zum vierten Mal gemeinsam die „Potsdam Days on Bioanalysis“.

Am ersten Tag werden die Zwischenergebnisse des BMBF-geförderten Projekts „Das Taschentuchlabor – Impulszentrum für integrierte Bioanalyse“ im Rahmen eines öffentlichen Statusseminars vorgestellt.

Das Projekt hat das Ziel, ein vollständiges diagnostisches System in Gegenstände des täglichen Bedarfs, namentlich Hygienetücher, zu integrieren, um einen unmittelbaren Erregernachweis am „Point-of-need“ zu ermöglichen. Die in diesem Projekt zentrale Entwicklung moderner Sensor-Aktor-Moleküle bildet zudem die Basis für eine Vielzahl neuartiger Entwicklungen. Für das am zweiten Tag stattfindende „Potsdamer Bioanalytik Kolloquium“ konnten ausgewiesene Experten aus den Bereichen Zell-Assay-Entwicklung, Mikrofluidik, Lab-On-Chip-Systeme, Molecular Imprinting und Biosensorik gewonnen werden, um neueste wissenschaftliche Trends sowie erfolgreiche Konzepte und Entwicklungen vorzustellen.

Die „Potsdam Days on Bioanalysis 2012“ bieten damit erneut vielfältige Möglichkeiten, eigene Konzepte mit Partnern aus Wissenschaft und Wirtschaft zu diskutieren und weiterzuentwickeln.

## Potsdam Days on Bioanalysis 2012

In the context of fast technological development, bioanalysis is becoming increasingly important. Retrospective processes are being replaced by innovative, prospective processes. Additionally, combinations of different individual methods open up new possibilities for analytical applications.

About 20 research institutes and over 80 small and medium-sized enterprises (SME) promote bioanalytical research and development in the Capital Region. Supported by the Center for Molecular Diagnostics and Bioanalysis (ZMDB), cooperations between science and industry have been initiated. Thus, new, bioanalytical methods, such as autonomic biosensors, optic sensor-arrays and predicative immunoassays, are being developed. In this context the ZMDB and the Fraunhofer Institute for Biomedical Engineering IBMT will organize the this year's „Potsdam Days on Bioanalysis“ for the fourth time in succession.

On the first day, interim results of the BMBF-supported project “Lab in a Hankie – Impulse Centre for Integrated Bioanalysis” will be presented as part of a public status seminar. The project aims at integrating a complete diagnostic system into items of daily use, here handkerchiefs, to allow an immediate pathogen detection at the “Point-of-need”.

Additionally, the central development of modern Sensor-Actor-Molecules in this project establishes a basis for a multitude of new developments. For the “Potsdam Colloquium on Bioanalysis”, which takes place on the second day, highly qualified experts in Cell-Assay-development, Microfluidics, Lab-On-Chip-systems, Molecular Imprinting and Biosensor Technology have been invited to present the latest scientific trends, as well as successful concepts and developments.

Once more, the “Potsdam Days on Bioanalysis 2012” offer a variety of possibilities to discuss and develop further own concepts with partners from science and industry.



3<sup>rd</sup> Public Status Seminar

# “Lab in a Hankie” – Impulse Centre for Integrated Bioanalysis

## Keynote Lecture

- 13:15 Transport dynamics in crowded systems: cells, gels and hankies?  
Ralf Metzler [University of Potsdam]
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## Summarizing the Project

- 14:00 The challenge of molecular integration of diagnostics  
Frank F. Bier [Fraunhofer IBMT · Potsdam]
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## Recognition

- 14:20 Characterization of novel immunodominant proteins of pathogenic bacteria  
for specific binding  
Sebastian Hoppe [Fraunhofer IBMT · Potsdam]
- 14:40 *In silico* studies for epitope identification  
Johannes Schuchhardt [Microdiscovery GmbH · Berlin]
- 15:00 Phage protein based recognition of *Salmonella* sp.  
Robert Seckler/Kerstin Tang [University of Potsdam]
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- 15:20 Coffee Break

## Backbone

- 15:50 Functionalized polymer backbones for bioresponsive hydrogels  
Erik Wischerhoff [Fraunhofer IAP · Potsdam]
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## Signalling

- 16:10 Title to be announced  
Fred Lisdat [Technical University of Applied Sciences Wildau]
- 16:30 Visualizing the signal – polymer-coupled color reactions for point-of-care diagnostics  
Carsten Beta [University of Potsdam]
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## Systems Integration

- 16:50 Assembling components – a roadmap to demonstrators  
Frank F. Bier [Fraunhofer IBMT · Potsdam]
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- 17:10 Get together

# 4<sup>th</sup> Potsdam Colloquium on Bioanalysis

08:45 Registration

## Welcome Address

09:15 Frank F. Bier [Fraunhofer IBMT · Potsdam]

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## Keynote Lecture

09:30 Dynamic biomarkers of neurodegeneration

Konrad Beyreuther [Founding Director of Network Aging Research · Heidelberg University]

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10:15 Coffee break

## Session I - Cell Analysis

10:30 Whole-cell-biosensors & cell-based bioanalytics

Joachim Wegener [Regensburg University]

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11:05 Label-free monitoring of living cells

Joachim Wiest [cellasys GmbH · Munich]

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11:40 Capture compound mass spectrometry (CCMS) – a highly efficient proteomics platform for drug target identification and toxicity assessment

Hubert Köster [caprotec bioanalytics GmbH · Berlin]

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12:15 Lunch and Poster Session

## Session II - Microfluidics and Biosensors

13:45 Droplet-based microfluidics: towards ultra-high throughput chemistry and biology

Andrew deMello [ETH Zurich · Switzerland]

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14:20 Microfluidics fabricated by nano-imprint-lithography and nano-plotter technology

Frank-Ulrich Gast [GeSiM mbH · Dresden-Großerkmannsdorf]

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14:45 An ultra-fast homogeneous electrochemical immunoassay for the detection of human chorionic gonadotropin in human urine

Nenad Gajovic-Eichelmann [Fraunhofer IBMT · Potsdam]

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15:05 Pathogen detection with isothermal nucleic acid amplification for biosensing and point-of-care-testing

Sebastian Kersting [University of Potsdam]

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15:25 Coffee break

### Session III - Imprinting

15:45 Photopolymerization and photostructuring of molecularly imprinted polymers for sensor applications

Karsten Haupt [Compiegne University of Technology · France]

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16:20 Intelligent biosensors unifying bioelectrocatalysis by minizymes with mip-based selectivity

Aysu Yarman [Fraunhofer IBMT · Potsdam]

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16:40 Electrosynthesized molecularly imprinted film for selective peptide and protein rebinding by surface confined epitope approach

Decha Dechtrirat [Fraunhofer IBMT · Potsdam]

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17:00 Molecular imprinted polymers offer new perspectives in bioanalytics

Ashutosh Tiwari [Linköping University · Sweden]

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### Closing Remarks

17:35 Christine Mißler [Center for Molecular Diagnostics and Bioanalysis (ZMDB)]

17:45 End

[www.taschentuchlabor.de](http://www.taschentuchlabor.de)  
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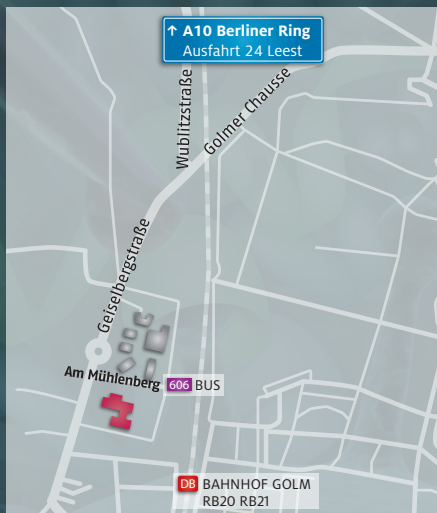
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## Venue

Fraunhofer Institute for Biomedical Engineering IBMT  
Branch Potsdam  
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