

# European Biosensor Symposium 2021 Online

## Tuesday 09.03.2021

08:45 Opening of the meeting room

09:00 Welcome

09:10 Keynote lecture 1

Chair: **Fred Lisdat** (Wildau, Germany)

**Hatice. Altug** (Lausanne, Switzerland)

Frontiers in Nanophotonic Biosensors

09:35 **Cosimo Trono**, T.K. Dey, S. Tombelli, P. Biswas, A. Giannetti, N. Basumallick, F. Baldini, S. Bandyopadhyay (Kolkata, India; Florence, Italy)

Etched long period fiber gratings near turn around point for high sensitive label-free biosensing

09:50 **Alessandra M. Bossi**, D. Maniglio, N. Cennamo (Verona, Italy)

Flexible molecularly imprinted nanoparticles in plasmonic optical sensing

10:05 Discussion

10:20 **Annalisa Scroccarello**, F.D. Pelle, D. Compagnone, (Teramo, Italy)

Plasmonic-active nanostructured thin-films for sensing and biosensing. Towards lab-on-a-strip smart devices

10:35 **Francesco Chiavaioli**, F. Esposito, L. Sansone, A. Srivastava, St. Campopiano, M. Giordano, A. Giannetti, A. Iadicicco, F. Baldini (Florence, Italy)

Long period fiber grating-assisted optical biosensing for the real-time detection of C-reactive protein in serum

10:50 **Stefanie Michaelis**, S. Azzam, M. Klein, Z. v. Guttenberg, L. Tomasova, J. Wegener (Regensburg, Germany)

A novel high-precision optical wound healing assay to analyze 2D cell migration

11:05 Discussion

11:20 Coffee break

- 11:40 Keynote lecture 2 Chair: Till Bachmann (Edinburgh, UK)  
**Francesco Baldini** (Florence, Italy)  
Chemical and biochemical optical fibre sensing for invasive and intracellular application: past, present and future
- 12:05 **Nako Nakatsuka**, A. Faillétaz, K. Vadodaria, U. Ilgin, F.H. Gage, D. Momotenko, J. Vörös (Zurich, Switzerland)  
Towards Simultaneous Neurochemical Sensing and Electrophysiology via Aptamer-Based Bioelectronics
- 12:20 **Eszter Supala**, L. Tamás, J. Erdössy, R.E. Gyurcsányi (Budapest, Hungary)  
Multiplexed redox gating measurements with a microelectrospotter. Towards electrochemical readout of molecularly imprinted polymer microarrays
- 12:35 Discussion
- 12:40 Lunch break
- 13:50 **Milad Eyvazi Hesar**, N. Seyedsadrkhani, D. Khan, M. Piekarski, S. Ingebrandt (Aachen, Germany)  
Disposable paper-based biosensors for continuous remote sensing
- 14:05 **Veronica Caratelli**, M. Moccia, C. Avitabile, M. Saviano, A.L. Imbriani, D. Moscone, F. Arduini (Rome, Italy)  
Smartphone assisted PNA-based printed electrochemical biosensor for non-invasive coeliac disease diagnosis
- 14:20 **Farnoosh Vahidpour**, T. Wagner, M.J. Schöning (Aachen, Germany)  
Simultaneous online monitoring and sterility assurance in aseptic food processing based on a combined chemical/biosensor
- 14:35 **Victor Diculescu**, M. M. Barsan, T.A. Enache, E. Matei, M. Enculescu, N. Apostol, I. Enculescu (Romania)  
Magnetic materials for electrodes and nanoparticles and their applications in biosensing
- 14:50 Discussion
- 15:10 **Poster discussion** – Session 1
- 17:00 End of the 1<sup>st</sup> day

## Wednesday 10.03.2021

08:45 Opening of the meeting room

09:00 Keynote lecture 3 Chair: Nicolas Plumere (Munich, Germany)

**Steffi Krause** (London, UK)

Photoelectrochemical imaging for live cell monitoring and sensor applications

09:25 M. Riedel, A. Ruff, W. Schuhmann, F. Lisdat, **Felipe Conzuelo**

(Wildau, Germany; Bochum, Germany)

Light-triggered biocatalytic reactions for multiplexed sensing

09:40 **Jana Becker**, T. Bobrowski, F. Conzuelo, A. Ruff, W. Schuhmann (Bochum, Germany)

A self-powered glucose sensor with optical readout

09:55 Discussion

10:10 **Alexey K. Orlov**, A.A. Galushin, A.A. Karykin, M.A. Komkova, (Moscow, Russia)

Bioelectrocatalysis by PQQ-Glucose Dehydrogenase Enhanced by Electropolymerized Azines for Advanced Biosensors

10:25 **Paolo Bollella**, A. Melman, Zh. Guo, S. Edwardraja, W. Johnston, K.A. Alexandrov, E.

Katz (Potsdam, USA)

PQQ-Glucose Dehydrogenase-Calmodulin Chimera Enzyme: Different Triggered Activation for Multipurpose Biosensors

10:40 **Soraya Höfs**, A. Talke, F. Lisdat (Wildau, Germany)

Enzyme activity determination of human monoamine oxidase B (Mao B) by amperometric hydrogen peroxide detection

10:55 Discussion

11:10 Coffee break

Chair: Frank Bier (Potsdam, Germany)

11:30 **Till Schlotter**, T. Kloter, S. Weaver, D. Momotenko, M. Aramesh, J. Vörös, T. Zambelli,

N. Nakatsuka (Zurich, Switzerland)

Cell Secretion Measurements using Force-Controlled Interface Nanopores

11:45 **Jiaxin Lian**, W. Tang, Y. Yang, S.G. Parker, V.R. Goncales, R.D. Tilley, J.J. Gooding

(Sydney, Australia)

A transparent platform for cell capture and single cell isolation

12:00 **Sorour Darvishi**, H. Pick, E. Oveisi, A. Lesch, H.H. Girault (Lausanne, Switzerland)  
Electrochemical imaging of E.coli biofilms using Soft-Probe-Scanning Electrochemical  
Microscopy

12:15 Discussion

12:30 Lunch Break

Chair: **Ulla Wollenberger** (Potsdam, Germany)

13:40 **Florian Gerstl**, U. Pongkitdachoti, A.J. Bäumner (Regensburg, Germany)  
Low-cost microfluidic device based on laser-induced graphene electrodes for highly  
sensitive electrochemiluminescent detection of pathogens

13:55 **Dua Özsoylu**, T. Isik, M.M. Demir, M.J. Schöning, T. Wagner (Jülich, Germany; Ismir,  
Turkey)  
Elastic electrospun polymer enabling cryo-preservation of a cell-based biosensor chip  
for ready-to-use on-site applications

14:10 **Atefeh Shafaat**, F. Neilands, S. Björklund, J. Sotres, T. Ruzgas (Malmö, Sweden)  
Wireless sensing of biofilm formation in medically relevant bacteria based on Ag/AgCl  
redox conversion

14:25 **Simon Guette-Marquet**, Ch. Roques, A. Bergel (Toulouse, France)  
Catalysis of oxygen electro-reduction by animal and human cells: a new platform for  
cell-based biosensors

14:40 Discussion

15:00 **Poster discussion** – session 2

16:50 End of the 2<sup>nd</sup> day

## Thursday 11.03.2021

08:45 Opening of the meeting room

09:00 Keynote lecture 4

Chair: Petr Skladal (Brno, Czech Republic)

**Janos Vörös** (Zurich, Switzerland)

The role of non-specific binding in determining the limit of detection of diagnostically relevant biosensors

09:25 **Mihaela Puiu**, L-G. Zamfir, V. Mirceski, C. Bala (Bucharest, Romania)

Bifunctional Peptide Supports Designed for Electrochemical Signalling-off Detection of High-Molecular Weight Targets

09:40 **Zeynep Altintas**, R. Tchinda, A. Tutsch, J. Drzazgowska, B. Schmid, R. Sussmuth, (Berlin, Germany)

Computationally determined epitopes and high-affinity synthetic protein binders for biosensor applications

09:55 Discussion

10:10 **Rocio Arreguin-Campos**, K. Eersels, H. Dilien, B. v. Grinsven, T.J. Cleij (Maastricht, Netherlands)

Combined thermal and electrochemical sensor platform employing a novel surface-imprinted polymer as receptor for the real time detection of Escherichia Coli.

10:25 **Viknasvarri Ayerdurai**, A. Garcia-Cruz, M. Cieplak, P.S. Sharma, F. D`Souza, W. Kutner, (Warsaw, Poland)

Nucleobase-Functionalized Molecularly Imprinted Polymer (MIP) Electrochemical Sensor for Determination of Heterocyclic Aromatic Amines

10:40 **Francesca Torrini**, P. Palladino, S. Scarano, M. Minunni, (Florence, Italy)

A polynorepinephrine-based molecular imprinting assay targeting a small peptide hormone in doping control analysis

10:55 Discussion

11:10 Coffee Break

11:30 Keynote lecture 5

Chair: Giuseppe Spoto (Catania, Italy)

**Can Dincer** (Freiburg, Germany)

CRISPR-powered electrochemical multiplexed nucleic acid testing

- 11:55 **Noemi Bellassai**, M. Selvaraj, R. D'Agata, P. Greco, G. Spoto, (Catania, Italy)  
Quantification of circulating microRNAs biomarkers using a novel isothermal amplification method in microfluidic devices
- 12:10 **Christian Warmt**, C.K. Fenzel, C. Yaslanmaz, S. Zwirner, L.-M. Broweleit, J. Henkel, F.F. Bier (Potsdam, Germany)  
Isothermal amplification methods as a versatile option for standard PCR in the field of lab automation and PoC testing
- 12:25 Discussion
- 12:40 Lunch Break
- 13:50 **Alessandro Porchetta**, M. Rossetti, F. Ricci (Rome, Italy)  
Programming DNA-based Sensing Platforms through Effective Molarity Enforced by Biomolecular Confinement
- 14:05 **Andrea Miti**, S. Thamm, P. Müller, A. Csáki, W. Fritzsche, G. Zuccheri (Bologna, Italy; Jena, Germany)  
LSPR based detection based on Hybridization Chain Reaction for miRNA detection
- 14:20 **Anna Brunauer**, A-S. Kittel, R.D. Verboket, F. v. Stetten, S.M. Früh, (Freiburg, Germany)  
Multianalyte-Assays: Simultaneous detection of protein and nucleic acid biomarkers
- 14:35 **Julian Guercetti**, J-P. Salvador, A. Avino, R. Eritja, N. Pascual, P. Marco (Barcelona, Spain)  
DNA directed immobilization in a microarray immunoassay for multiplexed detection of antibiotics
- 14:50 Discussion
- 15:10 **Poster discussion** – session 3
- 17:00 End of the 3<sup>rd</sup> day

## Friday 12.03.2021

08:45 Opening of the meeting room

09:00 Keynote lecture 6

Chair: **Gerald Urban** (Freiburg, Germany)

**Francesco Ricci** (Rome, Italy)

Electrochemical DNA-based nanodevices for IgG antibodies detection

09:25 **Julia Klüpfel**, S. Würstle, J. Mautner, M. Ungerer, U. Protzer, M. Elsner, M. Seidel  
(Munich, Germany)

Automated, flow based chemiluminescence microarray immunoassay for the rapid multiplex detection of IgG antibodies to SARS-CoV-2 in human serum and plasma (CoVRapid CL-MIA)

09:40 **Michala Forinová**, A. Pilipenco, I. Visova, L. Frana, M. Houska, M. Vrabcová, J. Arnostová, V. Hönig, M. Palus, J. Sterba, J. Dostálek, N.S. Lynn, A. Dejneka, T. MacCulloch, N. Stephanopoulos, H. Vaisocherová-Lisalová (Prague, Czech Republic)  
Rapid one-step quantitative detection of SARS-CoV-2 virus in crude samples using antifouling quartz crystal microbalance biosensor

09:55 Discussion

10:10 **Verónica Serafin**, A. Valverde, M. Gamella, E. Povedano, C.A. Razzino, M. Pedrero, M. Garranzo-Asensio, A. Montero-Calle, R. Barderas, M. Calero, A.O. Lobo, P. Yanez-Sedeno, S. Campuzano, J.M. Pingarrón (Madrid, Spain)

Hybrid nanostructures in dual immunosensing for determining candidate biomarkers in this century diseases

10:25 **Antonio Minopoli**, B. Della Ventura, B. Lenyk, F. Gentile, J.A. Tanner, A. Offenhäusser, D. Mayer, R. Velotta (Jülich, Germany; Naples, Italy)

Ultrasensitive plasmonic apta-immunosensor for detection of malaria biomarkers in human whole blood

10:40 **Eloy Povedano**, M. Gamella, R.M. Torrente-Rodriguez, A. Montero-Calle, M. Pedrero, G. Solis-Fernández, F. Navarro-Villoslada, R. Barderas, S. Campuzano, J.M. Pingarrón (Madrid, Spain)

Magnetic microbeads amperometric immunoplatform for the rapid and single-base sensitive detection of N6-methyladenosine residues to assist in metastatic cancer cells discrimination

10:55 Discussion

11:10 Coffee Break

Chair: **Laura Lechuga** (Barcelona, Spain)

- 11:30 **Rudolf J. Schneider** (Berlin, Germany)  
Environmental monitoring by high-throughput immunoanalytical methods and portable devices
- 11:45 **Greta Gaiani**, S. Leonardo, T. Tsumuraya, M. Rambla-Alegre, J. Diogène, C.K. O`Sullivan, C. Alcaraz, M. Campàs (Spain)  
First electrochemical biosensor for the detection of ciguatoxins in fish and microalgal samples
- 12:00 **Claudy D`Costa**, M. Gesto, A. Heiskanen, A. Wolff, J. Emnéus (Kopenhagen, Denmark)  
Online monitoring of cortisol in recirculated aquaculture systems
- 12:15 Discussion
- 12:30 Lunch Break
- 13:40 **Alvaro Luque-Uria**, R. Peltomaa, T.K. Nevanen, H. Arola, E. Benito-Pena, M.C. Moreno-Bondi, (Madrid, Spain)  
Bioluminescent immunosensing of the immunosuppressant mycophenolic acid with a recombinant peptide-mimetic luciferase
- 13:55 **Günther Proll**, P. Fechner (Tübingen, Germany)  
Functional immobilization of small molecules by carbene mediated photo-linking for label-free detection
- 14:10 **Meryem Belkilani**, C. Farre, Y. Chevalier, A. Abdelghani, N. Jaffrézic-Renault, C. Chaix (Lyon, France; Tunis, Tunisia)  
Liposome based surface plasmon resonance (SPR) sensor for mono Rhamnolipid detection
- 14:25 **Siddharth S. Sahu**, P. Haag, A.E. Karlström, K. Viktorsson, R. Lewensohn, J. Linnros, A. Dev (Uppsala, Sweden)  
Improved Electrokinetic Detection Of Extracellular Vesicles Through Surface Charge Tuning
- 14:40 Discussion
- 15:00 Concluding remarks
- 15:10 **Poster discussion** – session 4
- 17:00 **Announcement of prize winners**
- 17:10 End of the conference