

4th OCTOBER 2024 SWISS SYMPOSIUM IN POINT-OF-CARE DIAGNOSTICS



7TH EDITION

PROGRAM BROCHURE

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Dear colleagues, esteemed past participants, and new attendees,

We are thrilled to welcome you to the 7th edition of the Swiss Symposium in Point-of-Care Diagnostics, taking place on October 4, 2024, at the Technopark in Zürich. Building on the success of previous events, this year's symposium features an exciting new single-day format, continuing our tradition of bringing together medical professionals, IVD industry experts, and leading researchers.

Get ready for an enriching experience filled with stimulating discussions, insightful presentations, and networking opportunities, all centered around the latest advance-

ments in Point-of-Care Diagnostics. The vibrant city of Zürich, with its thriving technology and innovation scene, provides the perfect backdrop for what promises to be an engaging and fruitful symposium.

We would like to express our sincere thanks to our sponsors and exhibitors, whose generous support has made this event possible. Their contributions enrich the symposium and foster the exchange of ideas.

We are also excited to view the diverse and innovative poster presentations, showcasing the remarkable work being done in this rapidly evolving field.

We eagerly anticipate your participation and look forward to a day of inspiration, exchange, and exploration at the heart of Zürich!

Warm regards,



Samantha
Paoletti



Marc
Pfeifer

Table of contents

ORGANIZERS	4
SCIENTIFIC PROGRAM	7-10
KEYNOTE SPEAKERS	12
ABOUT CSEM	13
ABOUT HES-SO	14
ABOUT ZHAW	15
POSTER LIST	17-21

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Scientific program

09:30 **Registration & coffee**

10:00 **Welcome to the 7th Swiss Symposium in Point-of-Care Diagnostics**
Symposium Co-Chairs: Dr. Samantha Paoletti, CSEM - Prof. Marc E. Pfeifer, HES-SO

10:10 **Innovative Solutions: Transforming Health and Personalized Medicine**
Dr. Jens Krauss, VP MedTech, CSEM

Medical needs session

Session chair: Prof. Marc E. Pfeifer, HES-SO

10:15 **Small devices - Great performance**
Dr. Roman Fried, Director, Association for Medical Quality Control, University Hospital Zürich

10:30 **Improving access to POCDx – the depth and breadth of the challenge**
Prof. Daniel Paris, Medical Director and Head, Department of Medicine, Swiss Tropical and Public Health Institute

10:45 **The impact of unmet medical needs on the design and development of new diagnostic products**
Dr. Julia Gerber, Clinical Development and Medical Affairs, Roche Diagnostics International Ltd., Rotkreuz, Switzerland

11:00 KEYNOTE SPEAKERS

Challenges of overdiagnosis in point-of-care

Prof. Alexandra Brandt Ryborg Jønsson
Roskilde University, Denmark, and Arctic University of Norway

Prof. John Brandt Brodersen
University of Copenhagen, Denmark & Region Zealand, and Arctic University of Norway

11:45 **Symposium photo, Lunch break, exhibition & poster session**

Research and technology session

Session Chair: Prof. Sandro Manni, ZHAW

13:00 **Microfluidics Meets Liquid Biopsy: Paving the Way for Non-invasive Cancer Detection**
Dr. Stavros Stavrakis, Senior Scientist / Lecturer, ETH Zürich

13:15 **Rapid and POC diagnostics development pipelines for a targeted anthelmintic treatment**
Dr. Ramon Eichenberger, Head of Medical Micro- & Molecular Biology Unit, Institute of Chemistry and Biotechnology, Zürich University of Applied Sciences (ZHAW)

13:30 **Using machine learning with very varied medical data sources in research projects: challenges and opportunities**
Prof. Henning Mueller, Professor, EHealth Unit Responsible, HES-SO Valais-Wallis



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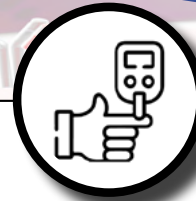
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Scientific program

Start up scene

Session Chair: Dr. Rainer Jaeggi | Roche

- 13:45 ***If your body could tell you how it feels about the food you've just eaten...***
Dr. Jacqueline Fendt, CEO, Cybetika
-
- 13:53 ***The Ups, Downs, and Everything In Between: Anecdotes from Building a Wearable Startup***
Dr. Nadine Lobsiger, CEO, entoothiast ag
-
- 14:01 ***Make every breath count for the diagnosis of respiratory infections***
Tobias Broger, CTO, Avelo
-
- 14:09 ***Redefining Preterm Birth Risk Monitoring: The role of vaginal secretions***
Dr. Pierre-Emmanuel Thiriet, Head of Research and Development, Rea Diagnostics
-
- 14:17 ***Focal Molography: Quantitative, Multiplexed, Real-Time and Wash-free Immunoassays without Fluorescence***
Dr. Andreas Frutiger, VP R&D, lino Biotech
-
- 14:25 **Coffee break, exhibition & poster session**

Product Innovation Session

Session Chair: Dr. Silvia Anghel, Veranex

- 15:15 ***Towards mass production of a photonic based IVD consumable***
Arthur Blom, COO, Surfix
Dr. Siegfried Graf, Principal engineer, CSEM
-
- 15:30 ***Lateral Flow Design and Development and advances in Molecular crossover***
Dr. Nina Garrett, CTO, Abingdon Health
-
- 15:45 ***When innovation in electrode manufacturing brings advantage for High-Volume, Cost-Effective Point-of-Care Biosensors***
Alix Joseph, Global Sales & Marketing Director Healthcare, Linxens
-
- 16:00 ***IBDoc® – the first IVDR certified fecal Calprotectin home test***
Christian Reinhard, Head POC&ST, Bühlmann Laboratories AG
-
- 16:15 **Poster awards**
-
- 16:30 **Closing remarks**
-
- 16:45 **Apero Riche & networking**
-

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Keynote speakers



PROF. ALEXANDRA BRANDT RYBORG JØNSSON

Roskilde University, Denmark, and Arctic University of Norway



PROF. JOHN BRANDT BRODERSEN

University of Copenhagen, Denmark & Region Zealand, and Arctic University of Norway

CHALLENGES OF OVERDIAGNOSIS IN POINT-OF-CARE

Unnecessary tests and treatments, including overdiagnosis, account for up to 40% of services delivered in healthcare and have thrown healthcare systems into an imminent crisis of overdemand and harmful use of resources. Meanwhile, underserved areas face the opposite challenge of undertreatment and underdiagnosis.

How can we address both crises simultaneously?

In this keynote, we will explore the concept of overdiagnosis—what it is, what it isn't, and the cultural and societal forces driving it. Drawing on decades of research in overuse and overdiagnosis, as well as our interdisciplinary backgrounds in anthropology and medicine, we will critically examine evidence from health and social science studies, initiating a discussion on when and how healthcare services may cause more harm than good. Here, we will be asking: When does point-of-care testing exacerbate overdiagnosis – and how can it be harnessed to prevent both overuse and underdiagnosis?

Join us for a discussion on how healthcare services, policies, and innovations can reduce harm and better allocate resources, paving the way for more equitable and effective care.

About CSEM – Advancing life sciences with impactful solutions

CSEM is a non-profit-oriented public-private Swiss technology innovation center renowned for developing advanced technologies with profound societal impact. Our mission is to transfer these innovations to industries, strengthening the economy. We are at the forefront of life sciences, combining engineering skills, biological understanding, and cutting infrastructure to revolutionize the field. By bridging precision manufacturing and digitalization, we develop disruptive biosystems that bring the lab to the patient and vice versa. From our advanced biosafety level 2 labs, we leverage cutting-edge technologies like cell microsystems, biomonitoring, lab automation, and AI to create impactful solutions. Our work narrows the gap between applied sciences and industrialization, enabling standardization and advancements for personalized medicine, diagnostics, and advancements in regenerative medicine. CSEM's tools for life sciences innovation are unlocking new possibilities in healthcare.

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Research & development at the ZHAW focuses on key societal challenges, with a particular emphasis on energy and societal integration. With its expertise in sustainable development and digital transformation, the ZHAW imparts forward-looking knowledge and takes an active part in shaping the digital and ecological transformation. With locations in Winterthur, Zurich and Wädenswil, the ZHAW is firmly anchored in its region whilst collaborating with international partners

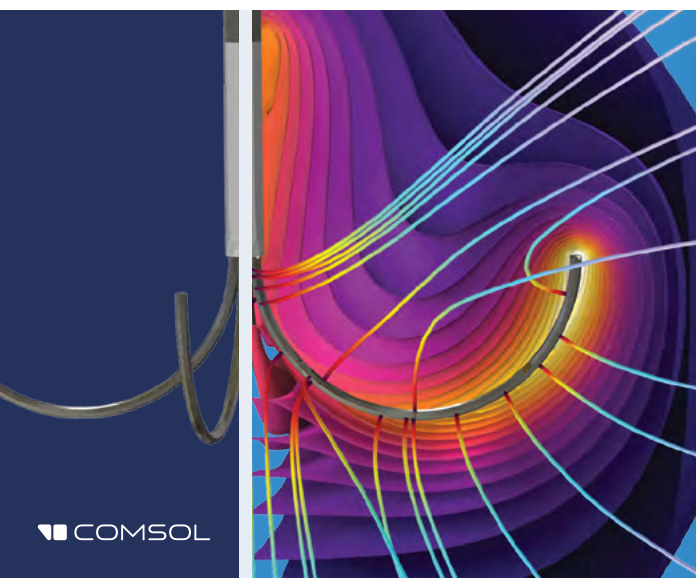
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03	COMSOL
04	Biotechnet
05	konplan Group AAG
06	Quidel Limited Ltd.
07	Axon Lab
08	LINXENS
09	Eaglenos Sciences (Switzerland) AG
10	Roche
11	ZHAW

Position	Company
12	ABCDx
13	Sino Biological Europe
14	Lino Biotech AG
15	Microsynth AG
16	Sysmex Suisse AG
17	Integra
18	IMT Masken und Teilunge AG
19	Bühlmann
20	MP Biomedicals Germany GmbH
21	CSEM

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Poster list

POSTER 1

PREDICTION OF MYCOTOXIN RESPONSE OF DNA-WRAPPED NANOTUBE SENSOR WITH MACHINE LEARNING

Y. Rabbani^{1,2}, S. Behjati¹, B. Lambert¹, S. Sajjadi¹, M. Shariaty-Niassar², A. A. Boghossian^{1*}

¹Institute of Chemical Sciences and Engineering (ISIC), Ecole Polytechnique Fédérale de Lausanne (EPFL), 1015-Lausanne, Switzerland,

²Transport Phenomena & Nanotechnology (TPNT) Lab., School of Chemical Engineering, College of Engineering, University of Tehran, Tehran, Iran

POSTER 3

ZERO CURRENT CHRONOPOTENTIOMETRY WITH WIRED GLUCOSE BIOSENSOR

Andrea Nonis, Polyxeni Damala, Eric Bakker

Departement of Inorganic and Analytical Chemistry, University of Geneva, Quai Ernest-Ansermet 30, 1211 Geneva, Switzerland
Andrea.Nonis@unige.ch

POSTER 2

TUNING THE THERMODYNAMIC INTERACTIONS AND ENGINEERING PH RESILIENCE OF OPTICAL NANOTUBE SENSORS FOR BIOMEDICAL APPLICATIONS

Sara Behjati¹, Lei Huang², Benjamin Rousseau¹, Yahya Rabbani¹, Hanxuan Wang¹, Subhasis Dehury¹, Roberta Di Costanzo, Sayyed Hashem Sajjadi¹, Daniel Constam², Ardemis A. Boghossian¹

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²Swiss Institute for Experimental Cancer Research (ISREC), Ecole Polytechnique Fédérale de Lausanne (EPFL), 1015 Lausanne, Switzerland.

POSTER 4

REGULATING POINT OF CARE: A MODERN INNOVATIVE PRESCRIPTION FOR IMPROVEMENT COMBATTING ENDEMICS AND EPIDEMICS WHILE ENHANCING PANDEMICS' PREPAREDNESS / THE UNIHEALTH PARADIGM

Dr. Aikaterini Zisaki, Patience Jecheche, Petros Malitas MB.BS.

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POSTER 5

A SIMPLIFIED CRISPR-BASED ASSAY FOR MONOCLONAL ANTIBODY QUANTIFICATION AT THE POINT-OF-CARE

S. Del Giovane¹, D. Migliorelli¹, A. Porchetta², H. Altug³, L. Burr¹

¹Swiss Center for Electronics and Microtechnology (CSEM), Landquart, Switzerland

²Department of Sciences and Chemical Technologies, University of Rome Tor Vergata, Rome, Italy

³Institute of Bioengineering, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

POSTER 6

THE ROLE OF A POCT COORDINATOR IN THE ACCURACY OF ACTIVATED CLOTTING TIME (ACT) LEVELS MEASUREMENT DURING CARDIAC CATHETERIZATION

E. Bukovetzky PhD, M. Nasser MA

Ziv Medical Center, Israel

POSTER 7

MICROFLUIDIC CARTRIDGE FOR SAMPLE MANIPULATION

Giorgio Brero, H. Baris Atakan, Pascal Odermatt, Jiande Zhou, Ellinor Thelander, Tom Valentin, Petra S. Dittrich, Felix Kurth

Swiss Center for Electronics and Microtechnology (CSEM), ETH Department of Biosystems Science and Engineering (D-BSSE)

POSTER 8

ROLL-TO-ROLL MANUFACTURED "LAB-ON-FOIL" SYSTEM WITH FUNCTIONAL HYDROGELS FOR ON-CHIP DETECTION OF PERIODONTAL PATHOGENS

Eva Melnik¹, Vanessa Thöny¹, Steffen Kurzthals¹, Hanna Wursag¹, Jasmin Huber¹, Thomas Maier¹, Giorgio Mutinati¹, Johannes Peham¹, Primož Skerbis², Stefan Schreck², Anja Haase³, Anne Linhardt³, Laura Angermann-Krammer³, Maria Belegri³, Barbara Stadlober³, Georg Reischer⁴, Johanna Kreuter⁴, Claudia Kolm⁴, Michael Heilmann⁵, Franz Padinger⁵, Nikolaus Ladenhauf⁶, Max Sonnleitner⁶, Rainer Hainberger¹

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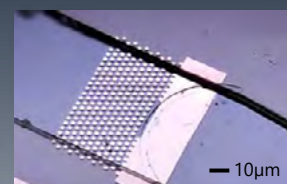
³Roche Pharma Research and Early Development, Roche Innovation Center Basel, 4070 Basel, Switzerland

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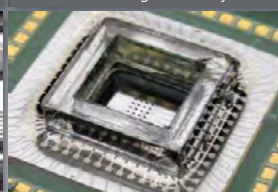
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Poster list

POSTER 9

PRÉCLUDE THE POINT-OF-CARE TEST FOR PREECLAMPSIA

[Mathias Wipf](#)¹, Christopher S. Wood^{1,2}, Emre Guersoy¹, Brad Pektus³, Dominic Meinel²

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²FHNW School of Life Sciences, Hofackerstrasse 30, 4132 Muttenz, Switzerland

³CSEM Landquart, Bahnhofstrasse 1, 7302 Landquart, Switzerland

POSTER 10

ON-SITE HEMATOCRIT AND FIBRINOGEN TESTING FOR EFFICIENT TRAUMA MANAGEMENT

[Silvia Schobesberger](#)¹, Helena Thumfart¹, Florian Selinger¹, Christoph J. Schlimp^{2,3}, Johannes Zipperle², and Peter Ertl¹

¹Faculty of Technical Chemistry, TU Wien, 1060 Vienna, Austria

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³Department of Anaesthesiology and Intensive Care, AUVA Trauma Center Linz, 4010 Linz, Austria

POSTER 11

IMPROVED SENSITIVITY AND USABILITY OF THE ABIONIC DIAGNOSTIC PLATFORM ESTABLISHED IN AN OVALBUMIN-DETECTION ASSAY

[Montpellier Bertrand](#)^{*}, Haquette Guillaume^{*}, Bate Simon[§], Maerki Iwan^{*}

^{*}Abionic SA, Epalinges, CH

[§]Defence Science and Technology Laboratory, Porton Down, Salisbury, UK

POSTER 12

DIRECTED EVOLUTION AND MACHINE LEARNING FOR IMPROVED SSDNA-SWCNTS SENSOR FOR NITRIC OXIDE DETECTION

[Sayyed Hashem Sajjadi](#)¹, Yahya Rabbani¹, Sara Behjati¹, Younes Rhouta¹, Vitalijs Zubkovs², Stefano Cattaneo², Valentina Basoli^{3,4}, Sibylle Grad⁴, Ardemis A. Boghossian^{1*}

¹École Polytechnique Fédérale de Lausanne (EPFL), Lausanne

²Centre Suisse d'Electronique et de Microtechnique (CSEM), Landquart

³University of Basel, Department of Biomedical Engineering, Basel

⁴AO Research Institute (ARI), Davos

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POSTER 13

PYPOCQUANT A TOOL TO AUTOMATICALLY QUANTIFY POINT-OF-CARE TESTS FROM IMAGES

Andreas P. Cuny^{1,2}, Fabian Rudolf and Aaron Ponti^{1,2}

¹ETH Zurich, Department of Biosystems Science and Engineering, Basel, Switzerland

²Swiss Institute of Bioinformatics, Mattenstr. 26, 4058 Basel, Switzerland

POSTER 14

THE CASE OF MILD TRAUMATIC BRAIN INJURY (MTBI) – AN UNDERDIAGNOSIS/ OVERDIAGNOSIS TRADE-OFF?

Milica Jović, Denis Prim, Marc E. Pfeifer

Diagnostic Systems Research Group, Institute of Life Sciences, School of Engineering, HES-SO Valais Wallis, 1950 Sion

POSTER 15

REAL-TIME PHYSIOLOGICAL SIGNAL PROCESSING FOR STRESS AND COMMUNICATION DETECTION IN NON-VERBAL AUTISTIC PATIENTS

Alena Simalatsar¹, Benjamin Caillet¹, Josephine Convertini^{2,3}, Vincent Guinchat^{2,3}

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²CHUV, UPOCHM Unité psychiatrique de crise dévolue au handicap mental/Epione

³STSA Service des troubles du spectre de l'autisme et apparentés

POSTER 16

SUSTAINABLE, MINIATURIZED AND SMART STRIP WITH EMBEDDED ELECTRONICS FOR POINT OF CARE DIAGNOSTICS (SME-POC)

Amrith Sukumaran, Morgan Monroe, Pascal Nussbaum, Loïc Burr, Francesco Caruso, Alberto Zandara, Guillaume Bouilly, Loïc Andre, Saleem Khan, Ioannis Stergiou, Felix Kurth, Jean-Luc Nagel, Ivan Marozau, Regis Cattenoz, Cedric Hennemann, Stefano Cattaneo and Emery Stéphane

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POSTER 17

MICROFLUIDIC BASED VERSATILE
AMPLIFICATION METHOD FOR SINGLE-
MOLECULE DETECTION IN LIQUID BIOPSY

[Hoang-Tuan Nguyen](#)¹, Annukka Kokkonen², Sanna Aikio²,
Matti Virkki², Jarno Petäjä², Inka Pääkilä², Jussi Hiltunen²,
Prateek Singh¹

¹Finnadvance Ltd., Oulu, Finland

²VTT Technical Research Center of Finland Ltd., Oulu, Finland

POSTER 18

MACHINE LEARNING AND STATISTICAL
CLASSIFICATION OF CRISPR-CAS12A
DIAGNOSTIC ASSAYS

[Nathan K. Khosla](#)¹, Jake M. Lesinski¹, Marcus Haywood-
Alexander², and Andrew J. DeMello¹

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