

Zurich University  
of Applied Sciences



**Life Sciences and  
Facility Management**

**Institute of  
Chemistry and Biotechnology**

BioTech 2017

**Sensor Technology and  
Online Analytics  
to Enhance (Bio)Process  
Understanding**

**7 and 8 September 2017**

Zurich University of Applied Sciences  
(ZHAW) Wädenswil, Switzerland  
[www.biotech2017.ch](http://www.biotech2017.ch)

# Scope

The BioTech conference series has successfully focused on various biotechnology topics over many years, bringing together scientists and professionals from both industry and academia.

It is our pleasure to invite you to the BioTech 2017 conference. The symposium will provide an interdisciplinary discussion forum for experts in the field of (bio) process analytics and sensor technology.

Measuring and control can be expected to play an even more prominent role in the process industry, due to rising quality demands, the requirements of efficient production and automation, and the need to gain insight into the process in real-time.

Taking these developments into consideration, BioTech 2017 will address the following topics:

## **At-line process monitoring and control**

Chromatographic and spectroscopic analytical methods such as LC/MS or NMR are increasingly used to monitor industrial processes. BioTech 2017 will promote discussions on the challenges in this field, such as sampling, speed and reliability.

## **Online biomass sensing**

Biomass concentration is a critical parameter in microbial cultivations as well as in cell cultures. BioTech 2017 will emphasise prospects and challenges of biomass sensors and their application to bioprocesses.

## **Sensors and biosensors in biotech applications**

Chemical sensors and biosensors that are based on electro-chemical, optical or other measuring principles are essential tools in bioprocess analytics. BioTech 2017 will focus on current trends in implementing advanced sensor technology in bioprocesses.

## **Visions and perspectives in (bio)process analytics**

At BioTech 2017, analytical techniques will be discussed that may not be commercially available at the moment, but could be standard tools in the near future. Experts applying these techniques in their processes will be involved in this discussion via the platform provided.

# Programme overview

## Thursday, 7 September 2017

09.00 – 09.30	Registration and coffee	
09.30 – 12.00	<b>Session 1</b> Sensors and biosensors	
12.00 – 13.30	<b>Lunch, exhibition and posters</b>	
13.30 – 15.00	<b>Parallel session 2A</b> Process analytical technology	<b>Parallel session 2B</b> Online analytics
15.00 – 15.30	<b>Coffee, exhibition and posters</b>	
15.30 – 17:00	<b>Parallel workshop A</b>	<b>Parallel workshop B</b>
17:00 – 17:15	Refreshments	
17.15 – 18.30	<b>Young forum</b>	
18.30 – 19.00	Aperitif	
19.00	<b>Conference dinner</b>	

## Friday, 8 September 2017

08.30 – 09.00	Registration	
09.00 – 10.30	<b>Session 3</b> Online biomass measurement	
10.30 – 11.00	<b>Coffee, exhibition and posters</b>	
11.00 – 12.30	<b>Parallel session 2A</b> Process control in industrial settings	<b>Parallel session 2B</b> Online analytics
12.30 – 14.00	<b>Lunch, exhibition and posters</b>	
14:00 – 15:30	<b>Session 5</b> Online spectroscopy	
15:30 – 16:00	<b>Poster awards and closing remarks</b>	
16.00	Farewell aperitif	

# Thursday, 7 September 2017 (morning)

## Session 1: Sensors and biosensors (Room GA 203)

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09.00 – 09.30	Registration and coffee
09.30 – 09.45	<b>Welcome message</b> Christian Hinderling, Zurich University of Applied Sciences, Wädenswil (CH)
09.45 – 10.30	<b>Biosensors for biotech: Successes, challenges and prospects</b> Anthony Turner, Biosensors & Bioelectronics Centre, Linköping University, Linköping (SE)
10.30 – 11.00	<b>Solid contact technology provides superior performance for online pH sensors</b> Maura Crobu, Mettler Toledo GmbH, Process Analytics, Urdorf (CH)
11.00 – 11.30	<b>Coupling enzymes and electrodes in bio-electrocatalytic devices</b> Ulla Wollenberger, Analytical Biochemistry, University of Potsdam, Potsdam (DE)
11:30 – 12:00	<b>Reliable biosensor- based miniaturized systems for process control</b> Gerhard Jobst, Jobst Technologies GmbH/IST AG, Freiburg (DE)
12:00 – 13:30	Lunch (Building GC) Exhibition and posters (Building GA)

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# Thursday, 7 September 2017 (noon)

## Parallel session 2A: Process analytical technology (Room GA 203)

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- 13.30 – 14.00      **Towards quality by real-time monitoring and control of mammalian cell culture bioprocesses**  
Markus Luchner, Department of Biotechnology,  
University of Natural Resources and Life Sciences  
(BOKU), Vienna (AT)
- 
- 14.00 – 14.30      **«ProcessShield»: a novel modular «soft-sensor» based platform using process intelligence for robust online fermentation control**  
David Bittner and Jonathan Sturm, AG Bioprozesstechnik, Westfälische Hochschule, Recklinghausen (DE)
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- 14.30 – 15.00      **PAT 2.0: Integrated process control solutions via modular sampling interfaces**  
Lukas Neutsch and Matthias Barmettler, Zurich  
University of Applied Sciences, Wädenswil (CH)/  
Securecell AG, Schlieren (CH)
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- 15.00 – 15.30      Coffee, exhibition and posters (Building GA)
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## Parallel session 2B: Online analytics (Room GB 217)

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- 13.30 – 14.00      **A novel monitoring tool based on chromatogram fingerprinting as potential enabler of continuous bioprocessing**  
Oliver Spadiut, Biochemical Engineering, Integrated  
Bioprocess Development, TU Wien, Vienna (AT)
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- 14.00 – 14.30      **Data management: The link between analytics and process understanding**  
Tobias Merz, Process Analytical Technology,  
Lonza Ltd., Visp (CH)
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- 14.30 – 15.00      **Optimization of biogas production: online ion-chromatography as a powerful monitoring tool of organic acids in industrial waste water**  
David Witmer, Metrohm Schweiz AG, Zofingen (CH)
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- 15.00 – 15.30      Coffee, exhibition and posters (Building GA)
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# Thursday, 7 September 2017 (afternoon)

## Parallel workshop A: (Building GA)

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15.30 – 16.00	<b>Intelligent sensors for real time (at-line) process monitoring and control</b> Jahir Kololli, Hamilton Bonaduz AG, Bonaduz (CH)
16.00 – 16.30	<b>A rugged and robust FTIR for real time PAT of biochemical and biological processes</b> Jonathon D. Speed, Keit Spectrometers, Didcot (UK)
16.30 – 17.00	<b>Dialysis sampling - devices and probes for continuous bioprocess monitoring</b> Wolfgang Künnecke, TRACE Analytics GmbH, Braunschweig (DE)
17.00 – 17.15	Refreshments (Building GA)

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## Parallel workshop B: (Building GA)

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15.30 – 16.00	<b>The centrifugal revolution: Low-shear, pulsation free, precise control fluid management for different applications</b> Simon Stöckli, Levitronix GmbH, Zürich (CH)
16.00 – 16.30	<b>Moving bioprocess information into the cloud and towards «big data» – the first steps</b> Daniel Egger, Infors AG, Bottmingen (CH)
16.30 – 17.00	<b>Online biomass sensing in shake flasks – techniques and applications</b> Jens Beyer, Aquila Biolabs, Baesweiler (DE)
17.00 – 17.15	Refreshments (Building GA)

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## Young forum (Building GA)

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17.15 – 18.30	<b>Entrepreneurship and innovation</b> Powered by Inartis Network Susanne Lauber Fürst, Inartis Network, Renens (CH)
18.30 – 19.00	Aperitif (Building GC)
19.00	Conference dinner (Building GC)

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## Friday, 8 September 2017 (morning)

### Session 3: Online biomass measurement (Room GA 203)

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08.30 – 09.00	Registration
09.00 – 09.30	<b>Recent developments in using online bio-capacitance probes to monitor and control bio-pharmaceutical processes</b> John Carvell, Aber Instruments Ltd., Aberystwyth (UK)
09.30 – 10.00	<b>Specific biomass growth rate estimation and control using on-line bioprocess monitoring</b> Michal Dabros, Institute of Chemical Technologies Haute école d'ingénierie et d'architecture, HES-SO, Fribourg (CH)
10.00 – 10.30	<b>A new multisensory platform for bioprocess development of microbial cultures in shake flasks</b> Gernot Thomas John, PreSens Precision Sensing GmbH, Regensburg (DE)
10.30 – 11.00	Coffee, exhibition and posters (Building GA)

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## Friday, 8 September 2017 (noon)

### Parallel Session 4A: Process control in industrial settings (Room GA 203)

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11.00 – 11.30	<b>Computation-driven scale-down of industrial fermentations</b> Henk Noorman, DSM Biotechnology Center, Delft (NL)
11.30 – 12.00	<b>Continuous suspension cell culture monitoring in bioreactor using quantitative phase imaging</b> Jérémie Barbau, OVIZIO Imaging Systems, Brussels (BE)
12.00 – 12.30	<b>Using single use automation and material science to create a platform for bulk shipping</b> Guy Matthews, Parker Hannifin Manufacturing Ltd, Birtley (UK)
12.30 – 14.00	Lunch (Building GC) Exhibition and posters (Building GA)

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## Friday, 8 September 2017 (noon)

### Parallel session 4B: Online analytics (Room GB 217)

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11.00 – 11.30	<b>Novel solutions for the monitoring of small volume samples: electrochemical sensors on an automated platform</b> Mirta Viviani, Centre Suisse d'Electronique et de Microtechnique SA (CSEM), Landquart (CH)
11.30 – 12.00	<b>A supervisory control for a continuous integrated bioprocess based on Raman technology</b> Fabian Feidl, Institute for Chemical and Bioengineering, ETH Zürich (CH)
12.00 – 12.05	<b>Presentation of the Dr. Max Lüthi Award</b> David Spichiger, Swiss Chemical Society, Bern (CH)
12.05 – 12.30	<b>Development of bioinks for the fabrication of three-dimensional tissue models using 3D bioprinting</b> Sonia de Andrade, Institute of Chemistry and Biotechnology, Zurich University of Applied Sciences, Wädenswil (CH)
12.30 – 14.00	Lunch (Building GC) Exhibition and posters (Building GA)

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## Friday, 8 September 2017 (afternoon)

### Session 5: Online spectroscopy (Room GA 203)

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14.00 – 14.30	<b>In situ monitoring of multiple cell parameter using UV/Vis and fluorescence spectroscopy</b> Karsten Rebner, Fakultät Angewandte Chemie, Hochschule Reutlingen (DE)
14.30 – 15.00	<b>Improving protein product quality through real-time bioprocess control based on Raman spectroscopy</b> Alexander Pitters, Kaiser Optical Systems, SARL, Ecully (FR)
15.00 – 15.30	<b>Sensing in highly concentrated biotechnical processes by photon density wave spectroscopy</b> Roland Hass, PDW Analytics GmbH/University of Potsdam, innoFSPEC, Potsdam/Golm (DE)
15.30 – 16.00	<b>Poster awards and closing remarks</b> Caspar Demuth, Zurich University of Applied Sciences, Wädenswil (CH)
16.00	Farewell aperitif

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# Registration

Please register online at the conference website:

[www.biotech2017.ch](http://www.biotech2017.ch)

<b>Fees</b>	<b>before</b> 31 May 2017	<b>after</b> 31 May 2017
7 and 8 September 2017 (2 days)	<b>CHF 350.–</b>	<b>CHF 450.–</b>
7 or 8 September 2017 (1 day)	<b>CHF 200.–</b>	<b>CHF 300.–</b>
Conference dinner	<b>CHF 50.–</b>	<b>CHF 50.–</b>

The conference fee includes a copy of the abstract book, coffee breaks, lunches, and VAT. Accommodation is not included.

## Submission of abstracts

Poster abstracts should be submitted by e-mail to the scientific committee ([caspar.demuth@zhaw.ch](mailto:caspar.demuth@zhaw.ch)).

Please follow the format guidelines at

[www.biotech2017.ch/submission](http://www.biotech2017.ch/submission).

## Deadlines

31 May 2017	<b>Early registration</b>
29 June 2017	<b>Submission of poster abstracts</b>
4 July 2017	<b>Notification of acceptance of abstracts</b>
29 August 2017	<b>Registration and payment deadline</b>

## Contact

Participants and exhibitors	<b>Edith Lang</b> <b><a href="mailto:edith.lang@zhaw.ch">edith.lang@zhaw.ch</a>, +41 58 934 55 46</b>
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## Postal address

Zurich University of Applied Sciences  
School of Life Sciences and Facility Management  
Grüntal, CH-8820 Wädenswil  
Switzerland

# Committees

## Scientific committee

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<b>Caspar Demuth</b>	Institute of Chemistry and Biotechnology, ZHAW, Wädenswil
Oreste Ghisalba	Commission for Technology and Innovation CTI, Reinach
Christian Hinderling	Head of Institute of Chemistry and Biotechnology, ZHAW, Wädenswil
Cathy Kroll	Swiss Biotech Association, Zürich
Hans-Peter Meyer	University of Applied Sciences Western Switzerland, Sion
Marc Suter	Swiss Chemical Society, Division of Analytical Sciences/EAWAG, Dübendorf

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## Local organising committee

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<b>Edith Lang</b>	Institute of Chemistry and Biotechnology, ZHAW, Wädenswil
Achim Ecker	Institute of Chemistry and Biotechnology, ZHAW, Wädenswil
Daniel Gyax	Biotechnet Switzerland, Basel
Susanne Lauber Fürst	Inartis Network, Renens
Philipp Kutter	Mayor of the City of Wädenswil
Beat Ritschard	Zürich Park Side (regional location promotion), Horgen

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# Partners

## Event Partners



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# Venue

BioTech 2017 will be held at the ZHAW School of Life Sciences and Facility Management in Wädenswil. The ZHAW is one of Switzerland's largest multi-disciplinary universities of applied sciences, and has over 11 500 students and 3 000 faculty and staff members. The Grüental Campus, where BioTech 2017 will take place, can be easily reached by public transport.

## From Zurich to Wädenswil

- By train (for details, see [www.sbb.ch](http://www.sbb.ch)): From Zurich main railway station (Hauptbahnhof) to Wädenswil: trains six times an hour (S2, S8, S25, RegioExpress), travel time ca. 20 minutes. From Zurich airport to Wädenswil: direct trains every 30 minutes (S2), travel time 35 minutes.
- By car: Leave the A3 motorway (Zurich-Chur) at the exit «Wädenswil» and follow the sign «ZHAW Tagung».

## From Wädenswil railway station to ZHAW Grüental Campus

- By public transport: buses number 123 and 126 to the bus stop «Campus Grüental»
- By taxi from Wädenswil railway station (approx. CHF 15.– one way): Wädi Taxi +41 79 780 52 52 or 1A Regional Taxi +41 44 780 77 77

## Accommodation

There are only limited opportunities for overnight accommodation in Wädenswil. Rooms can also be found in Horgen, Pfäffikon or nearby Zurich. All these towns have good train connections to Wädenswil.

