Programme of the Conference

“Breath Gas Analysis for Medical Diagnostics”
Vorarlberg University of Applied Sciences, Dornbirn
September 23rd to 26th, 2004

Thursday, Sept 23rd

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Registration</td>
</tr>
<tr>
<td>8:45</td>
<td>Welcome address by Oskar Müller and Anton Amann</td>
</tr>
<tr>
<td>9:00</td>
<td>Mass spectrometric techniques for breath gas analysis</td>
</tr>
<tr>
<td></td>
<td>Chairman: Tilmann Märk</td>
</tr>
<tr>
<td></td>
<td>Michael Phillips: “Methods in breath testing”</td>
</tr>
<tr>
<td>9:30</td>
<td>Armin Hansel and Armin Wisthaler: &quot;PTR-MS; a new tool for the rapid detection and quantification of VOCs in air at ultra-trace levels”</td>
</tr>
<tr>
<td>10:00</td>
<td>Patrik Španěl: “Selected ion flow tube mass spectrometry, SIFT-MS: accurate absolute quantification of metabolites in breath”</td>
</tr>
<tr>
<td>11:00</td>
<td>Coffee break</td>
</tr>
<tr>
<td>11:30</td>
<td>Spectroscopic and other techniques for breath gas analysis</td>
</tr>
<tr>
<td></td>
<td>Chairman: Lars Gustafsson</td>
</tr>
<tr>
<td>12:00</td>
<td>Manfred Mürtz: &quot;Laserspectroscopic online monitoring of exhaled trace gases”</td>
</tr>
<tr>
<td>12:00</td>
<td>Gerald Wysocki: “Exhaled human breath analysis by means of quantum cascade laser based gas sensors”</td>
</tr>
<tr>
<td>12:30</td>
<td>New techniques for breath gas analysis (two parallel sessions)</td>
</tr>
<tr>
<td></td>
<td>Chairman: Michael Phillips</td>
</tr>
<tr>
<td></td>
<td>Jörg Lauenstein: “Isotope selective detection of nitric oxide in human exhalation”</td>
</tr>
<tr>
<td></td>
<td>Chairman: Ingo Baumbach</td>
</tr>
<tr>
<td></td>
<td>Claudio Perret: “Validation of a new portable telemetric-ergospirometric device during exercise”</td>
</tr>
</tbody>
</table>

13:20 Lunch

14:20 Panel discussion: Is it time for establishing an "International Society for Breath Diagnostic Research"?
Chairman and discussion moderator: Ulrich Müller-Herold
Participants: A Amann, R Dweik, L Gustafsson, A Lindstrom, N Marczin, J Lundberg, W Miekisch, M Mürtz, M Phillips, J Pleil, T Risby, G Rolla, J Schubert, D Smith

Some points and questions for this panel discussion:
# Are there (potentially) enough interested people to keep such a society running?
# What contacts would there be to other societies, like ORCA (European organisation for Caries Research), European Thoracic Society, International Society for Breath Odor Research, etc.
# How could one optimize the benefits of cross-fertilisation of ideas from related areas?
# Could breath tests (say in the next two decades) become an integral part of medicine and dentistry (as well as other fields), in a broadly analogous way to blood tests in hospitals?
# Should such a society concentrate on breath, OR would it be more appropriate to include blood and urine headspace also?
# Who are the persons who could be sufficiently involved to give the society a flying start and maintain the momentum when the society is formed? Should a working group be formed to gauge interest? (it would be disastrous if interest was lost soon after its formation)
# Who could potentially sponsor such a society?

15.30 Coffee break

Breath gas analysis and physiology
Chairman: Raed A. Dweik

16:00 Lars Gustafsson: "Exhaled NO: how and why we know it is important"
16:30 Jon Lundberg: “Diagnostic use of a nasal NO test”
17:00 Andrew Lindstrom: “The use of exhaled breath analysis in human exposure assessment studies”
17:30 Joach Pleil: “The unique value of breath biomarkers for estimating pharmacokinetic rate constants and body burden from random/intermittent dose”
**Poster session A**

*Poster organizer:* Manfred Mürtz

18:00-19:00

T Birken, B Brock, JK Schubert: “A standardized CO₂ controlled alveolar breath sampling technique”


N Lalic, A Schmid: “Quality control in Tedlar bag PTR-MS measurements”

MJ McEwan, Jennifer M Scotter, VS Langford, PF Wilson and ST Chambers: “Real-time detection of common microbial volatile organic compounds (VOCs) from medically important fungi by SIFT-MS”

R Bloor, TS Wang, P Španěl, D Smith: “Applications of selected ion flow tube mass spectrometry (SIFT-MS) in addiction research”

A Cathcart, CA Wyse, PS Yam, SA Ward, MJ Padgett and KS Skeldon: "The effect of maximal exercise on exhaled CO and ethane in human and animal athletes"

M Basanta, T Koinitsiz and CL Paul Thomas: “Protocol for producing an ion mobility spectrometry library of VOC in human breath”

V Gufler and M Ledochowski: “Breath gas analysis in patients with malabsorption syndroms”

V Gufler and M Ledochowski: “Breath tests in gastroenterological practice – carbohydrate malabsorption”

Mona Lärstad: “Are ethane, pentane and isoprene produced locally in the airways? – a methodological study”

---

Dinner at Hotel Krone at 19.30

Remark: beverages are not included
Friday, Sept 24th

**Breath gas analysis for diagnostics and therapy**

*Chairman: David Smith*

8:00 Jochen Schubert: *"The background dilemma - influence of inhaled substance on the results of breath analysis"*

8:30 Keary Cope: *"Lung cancer breath biomarkers"*

9:00 Stefan Ryter and Augustine Choi: *"Can inhaled CO be a therapeutic modality in human diseases"

---

**Poster session B**

*Poster organizers: Giovanni Rolla and Joach Pleil*

9:30-10:30

GV Kamarchuk, OP Pospyelov, AV Yeremenko, EG Kushch, LV Kamarchuk: *"Selectivity of sensor response to the breath gas components as a method of noninvasive diagnostics of human diseases"

OP Pospyelov, GV Kamarchuk, YL Alexandrov, AV Kravchenko, E Faulques: *"TCNQ derivatives-based sensors for exhaled breath analysis"

A Malinovschi, C Janson, T Holmkvist, P Meriläinen, M Högman: *"Exhaled nitric oxide levels in relation to allergic sensitisation"

JB Mei, GA Reineccius, WB Knighton, EP Grimsrud, and T Krick: *"Comparison of linear response in the detection of aroma compounds by APCI-MS and PTR-MS"

H Oser, S E Young, and MJ Coggiola: *"Breath analysis using photoionization mass spectrometry"

S Prettin, K Roecker and S Sorichter: *"Automated and intra-breath shape analyses of expirograms on a breath-by-breath-basis - potential for diagnostic applications"

SM Cristescu, BWM Moeskops, AKY Ngai, FJM Harren: *"Sensitive monitoring of the UV-induced lipid peroxidation in human breath"

T Hemmingsson, D Linnarsson, R Gambert: *"Novel hand-held device for exhaled NO-analysis in research and clinical applications"

A Grundmann, J Nolte: *"Breath analysis by on-line TDS/GC/MS"

JI Baumbach, V Ruzsanyi, S Sielemann, A Tappe: *"Rapid 3D - spectra classification, identification and quantification of gaseous metabolites in human breath using ion mobility spectrometers"

10:30 *Coffee break*
**Current topics in breath gas analysis (two parallel sessions)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1</th>
<th>Session 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00</td>
<td>Cathy Wyse: “Potential application of breath analysis in veterinary medicine”</td>
<td>Gunther Becher: “Exhaled Breath Condensate (EBC) alternative or additional diagnostic procedure?”</td>
</tr>
<tr>
<td>11:20</td>
<td>Petra Reinhold: “Potential for and limitations of exhaled breath analysis in large animal models”</td>
<td>Hans-Jürgen Smith: “Capnography in the evaluation of pulmonary emphysema”</td>
</tr>
<tr>
<td>11:40</td>
<td>Caterina Bucca: “Exhaled nitric oxide and pulmonary complications after allogeneic stem cell transplantation”</td>
<td>Caroline Penault: “Detection of H.pylori infection by breath ammonia following urea ingestion”</td>
</tr>
<tr>
<td>12:00</td>
<td>Tianshu Wang: “A comparative study of breath ethanol and HDO using SIFT-MS and FA-MS: ethanol metabolism and total body water”</td>
<td>Marianne Högman: “Extended NO analysis in a random sample population”</td>
</tr>
<tr>
<td>12:20</td>
<td>Norman Ratcliffe: “Rapid diagnosis of gastrointestinal conditions from faecal volatiles”</td>
<td>Khaled Ismail: “Increase of acetone in urine headspace; a potential indicator of ovulation”</td>
</tr>
<tr>
<td>13:00</td>
<td>Anil Modak and Yasuhisa Kurogi: “Detection of $^{13}$CO$_2$ for diagnostic non-invasive breath tests with stable isotopes”</td>
<td>Claire Turner: “Analysis of breath using SIFT-MS: a comparison of breath profiles of healthy volunteers and seriously ill ICU patients”</td>
</tr>
<tr>
<td>13:20</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>14:20</td>
<td>Visit to Rolls-Royce Museum and High Tea there at 15:30</td>
<td></td>
</tr>
</tbody>
</table>

**Breath gas analysis in real time (at Rolls-Royce museum)**

*Chairman: Jochen Schubert*

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00</td>
<td>David Smith: “Applications of SIFT-MS in physiology, clinical diagnostics and therapeutic monitoring”</td>
</tr>
<tr>
<td>16:30</td>
<td>Anton Amann: “Breath gas analysis as a biochemical probe in the sleep laboratory”</td>
</tr>
<tr>
<td>17:00</td>
<td>Terence Risby: &quot;Effects of ventilation on the collection of exhaled breath in humans&quot;</td>
</tr>
</tbody>
</table>

**Presentation (at Rolls-Royce museum)**

John Vaughan: "Practical applications for exhaled breath condensate pH”

Buffet at Rolls-Royce Museum at 18:15
Saturday, Sept 25th

Clinical breath gas analysis

Chairman: Heinz Drexel

9:00 Terence Risby: "In vivo assessments of injury and disease based on breath"
10:00 Michael Phillips: “Breath volatiles - making sense of the data: Screening for cancer and other diseases”
11:00 Maximilian Ledochowski: “Breath gas analysis in patients with malabsorption syndrome”

11:50 Bernhard Lang Award Ceremony for the best poster and best short oral presentation

12:00 Lunch

Clinical breath gas analysis (continued)

Chairman: Anton Amann

13:30 Jochen Schubert: "VOC breath markers in critically ill patients - potential and limitations“
14:30 Raed A. Dweik: "Nitric oxide in exhaled breath: a window on lung physiology and pulmonary disease"
15:20 Coffee break
16:00 Nándor Marczin: “Diagnostic aspects of exhaled nitric oxide and carbon monoxide in cardiothoracic anaesthesia”
17:00 Giovanni Rolla: "Exhaled nitric oxide in hepatopulmonary syndrome"

Important notice. There is a bus transfer to the conference banquet venue: please gather at the designated meeting point at 19:15! The conference banquet starts at 20:00 at the restaurants “Altes Gericht” and “Torggel” in Sulz.
Sunday, Sept 26th

9:35 Please gather at the designated meeting point at 9:35
Bus transfer from Dornbirn to Andelsbuch (Bregenzerwald)

Lectures at the “Gemeindesaal Andelsbuch”

Novel approaches to breath gas analysis
Chairman: Nándor Marczin

10:30 Frank Kühnemann: "A breath test for plants: photoacoustic trace gas analysis and its application in plant science"

11:00 Patrik Španěl and David Smith: Flowing afterglow mass spectrometry, FA-MS, measurements of deuterium abundance in the water vapour in exhaled breath and above aqueous liquids; determination of total body water

11:30 Jochen Schubert: "New approaches to the analysis of small hydrocarbons in exhaled breath: Breath test for the monitoring of ischemia-reperfusion injuries"

12:00 Final Remarks: Anton Amann and David Smith

12:15 Invited lunch

13:30 Walk from Andelsbuch to Bersbuch

14:35 Nostalgic train trip from Bersbuch to Bezau

15:30 Farewell and transfer to Dornbirn arriving at 16.15