

Ecology of Soil Microorganisms

2011

BOOK OF ABSTRACTS

	Wednesday April 27	Thursday April 28	Friday April 29	Saturday April 30	Sunday May 1	
8:00		Registration				8:00
8:30						8:30
9:00		Microbial Nutrient Cycling and Biogeochemistry	Agricultural Soils: Biodiversity and Functioning	Microbes in the Changing Environment	Microbial Biodegradation Processes	9:00
9:30						9:30
10:00		Coffee	Coffee	Coffee	Coffee	10:00
10:30						10:30
11:00	Registration	Microbial Nutrient Cycling and Biogeochemistry	Agricultural Soils: Biodiversity and Functioning	Coffee	Soil Organic Matter Decomposition & Enyzmes in the Soil Environment	11:00
11:30						11:30
12:00		Lunch	Lunch	Microbes in the Changing Environment	Closing	12:00
12:30						12:30
13:00		Lunch	Lunch	Lunch	Takeaway lunch	13:00
13:30						13:30
14:00		Methods in Soil Microbial Ecology	Microbial Diversity and Processes in Forest Soils			14:00
14:30						14:30
15:00		Coffee	Coffee			15:00
15:30						15:30
16:00	Opening & welcome concert	Fungi in the Soil Microbial Community	Interaction among Micro- and Macroorganisms in Soils			16:00
16:30						16:30
17:00	Keynotes	Poster Session No. I	Poster Session No. II			17:00
17:30						17:30
18:00	Welcome reception					18:00
18:30						18:30
19:00						19:00
19:30						19:30
20:00				Conference dinner		20:00
20:30						20:30
21:00						21:00
21:30						21:30
22:00						22:00

WELCOME

Welcome to Prague to the conference devoted to the importance of microorganisms for the functioning of soils. The idea behind the decision to organize this meeting originated from the lack of a specialized soil conference providing an interdisciplinary platform where experts from different disciplines related to microbial ecology can meet and new strategies for further research topics can emerge from such interaction. We are confident in the power of the novel tools used in microbial ecology including, among many others, metagenomics or metaproteomics, but at the same time we feel that the new approaches can only deliver important knowledge when combined with classical studies on individual microbes, in-situ chemical and biochemical analyses or ecosystem integration and modelling. A major goal of the conference is also to bring into contact researchers in mycology and the large community of microbial ecologists that focus on bacteria and archaea. Without being able to understand the whole complexity of microbial communities, questions about ecosystem functioning are impossible to answer. The meeting is designed to reflect not only the fundamental questions of soil microbiology but also to specifically address major current issues: the functioning of agricultural soils under different management strategies, the role of forest soils in the global biogeochemical cycles and the global human-induced effects on soils and their microbiota.

We hope that you enjoy the programme of invited and contributed oral talks as much as we have enjoyed putting it together for you. Unfortunately, the limited time for oral contributions has resulted in several extremely interesting topics having to be presented as posters. Please do not miss either of the two poster sessions that considerably increase the diversity of the topics covered.

We would like to acknowledge the support of all of those who have contributed to the organization, our sponsors, exhibitors and the members of our scientific committee. However, the major thanks go to all of you – the contributors to our rich five-day scientific programme. The conference is the fruit of your efforts, so please, enjoy it!

Petr Baldrian

Chair of the Organizing Committee

GENERAL INFORMATION

Organising committee

Petr Baldrian - chair

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Members: Tomáš Cajthaml, Alica Chroňáková, Dana Elhottová, Jiří Gabriel, Milan Gryndler, Václav Křišťufek, Markéta Marečková, František Nerud, Martin Pospíšek, Hana Šantrůčková, Miloslav Šimek, Vendula Valášková

Scientific committee

Petr Baldrian (Czech Republic)

Lynne Boddy (United Kingdom)

Dana Elhottová (Czech Republic)

Jan Dirk van Elsas (The Netherlands)

Martin Hofrichter (Germany)

Heribert Insam (Austria)

Paolo Nannipieri (Italy)

Michael Schloter (Germany)

Keynote lectures

Christa Schleper (Austria): „Ammonia oxidizing archaea in soils: New discovery of an old group”

Jan Dirk van Elsas (The Netherlands): „Soil fungi provide hospitable niches for soil bacteria - mechanisms and concepts“

Invited speakers

Erland Baath (Sweden), Petr Baldrian (Czech Republic), Lynne Boddy (United Kingdom), Tomas Cajthaml (Czech Republic), Dana Elhottová (Czech Republic), Martin Hofrichter (Germany), Heribert Insam (Austria), Matthias Kästner (Germany), George Kowalchuk (The Netherlands), Bjorn Lindahl (Sweden), Paolo Nannipieri (Italy), Laurent Philippot (France), James I. Prosser (United Kingdom), Kathrin Riedel (Germany), Giancarlo Renella (Italy), Michael Schloter (Germany), Heike Schmitt (The Netherlands), Marc-André Selosse (France), Angela Sessitsch (Austria), Kornelia Smalla (Germany), Soren Sorensen (Denmark), Christoph Tebbe (Germany), Tim Urich (Austria), Hakan Wallander (Sweden), Matt Wallenstein (USA), Elizabeth Wellington (United Kingdom), Donald Zak (USA), Martin Zobel (Estonia)

Conference organisation

Centre of Environmental Microbiology

Praha & České Budějovice

GENERAL INFORMATION

Conference website

<http://www.soilmicrobes.org>

Conference Venue

TopHotel Prague, Blažimská 1781/4, Praha 4, Czech Republic

<http://www.tophotel.cz/en>

To reach the venue by public transport, take the metro to the station „Chodov“ and from there take the bus No 115 to the station “Městský archiv” (10 min). Bus departures from „Chodov“ are available at:

http://jrportal.dpp.cz/DataFTP/JRPortalData/115/20110122/115_%2852_4%29T.pdf,

departures from TopHotel at:

http://jrportal.dpp.cz/DataFTP/JRPortalData/115/20110122/115_%281132_1%29Z.pdf.

Paid public parking is available on site (6 EUR per day).

Please refer to map for more detail.

Language

The official language of the conference is English.

Registration

Registration desk in Top Hotel Praha will be open in Lounge 1. Opening hours:

Wednesday, April 27	12:00-18:00
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Thursday, April 28	8:00-11:00
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Friday, April 29 – Sunday, May 1	8:00-9:00
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All participants will receive Certificate of attendance during registration.

Name badges

All conference participants, accompanying persons and exhibitors are kindly requested to wear their badges throughout the conference in order to be admitted to the lecture hall and other conference facilities. Name badges will be also required for the admission to the Gala Dinner.

Oral presentations

All oral presentations will be held in the Congress Hall II.

Invited talks are scheduled for 22 minutes + 3 minutes for questions, contributed talks for 12 minutes + 3 minutes for questions. Presentations should be prepared in Microsoft PowerPoint 2003. The authors are responsible for checking the functionality of their presentations. The presenters' computer will have internet access but we strongly recommend saving any web pages in the presentation offline. Speakers' ready room (Lounge 3) will be available to all speakers from the beginning of registration until the end of the day's program. The presentations should be submitted at latest the day before they are scheduled to the organizers in the Speakers' ready room.

GENERAL INFORMATION

Poster presentations

Poster presentations will be displayed in the Conference Hall I. POSTER NUMBERS CORRESPOND TO THE PAGE NUMBERS IN THIS ABSTRACT BOOK. Posters 69-220 will be displayed on Thursday, April 28, posters 221-370 on Friday, April 29. The posters can be pinned up from 8:00 and must be collected before 20:00. Pins will be provided by the organizers. Poster dimensions should not exceed 90 cm (width) x 150 cm (height). Presenting authors are requested to be available at their posters for informal discussion during their poster session. The organizers are not responsible for any posters that have not been removed in time.

Student poster awards (100 EUR + diploma) will be awarded to three posters displayed on April 28 and three displayed on April 29 where students are presenting authors. The winners will be announced on April 30 after the end of the day's scientific program (before Lunch).

Internet access

Wireless internet will be available in the conference hotel free of charge to all participants.

Exhibitions

Commercial exhibition will take place during the conference in the Hall Praha.

Refreshments

Lunches (hot buffet) and coffee breaks (coffee and tea) are included in the registration fee and will be served during the lunch and coffee breaks in the Hall Praha. Name badges should be used during lunches and coffee breaks. Please note that „Ecology of Soil Microorganisms“ is a nonsmoking conference. Lunch on Sunday, May 1, will be served as a boxed meal to take away.

Wellcome reception

All conference participants are cordially welcome to the Welcome reception to be held on Wednesday, April 27 from 19:00 till 21:30 in the Hall Praha. The reception is included in the registration fee.

Gala dinner

Gala dinner will take place in an exclusive location within the Prague Castle, Rudolph's foundry – Vikárka on Saturday, April 30 between 19:30-22:30. Tickets ordered by the participants will be available at the registration desk. A limited number of tickets will be available for purchase at the registration desk for 1850 CZK. Vikárka is most easily accessible from the tram station „Pražský hrad“ (tram 22) or from the metro A stations „Hradčanská“ or „Malostranská“. Refer to a map for more detail.

Liability and Insurance

The organizer is not able to take responsibility whatsoever for injury or damage involving persons and property during Conference. Participants are advised to take out their own personal travel and health insurance for their trip.

PRACTICAL INFORMATION

Public transport in Prague

There are three metro lines and a number of tramway and bus lines in Prague. Details on city transport system are available at the official Prague Public Transport web site <http://www.dpp.cz/en/>.

The metro (subway) lines:

Line A (Green) - running east to west from *Depo Hostivař* to *Dejvická*

Line B (Yellow) - running east to west from *Černý most* to *Zličín*

Line C (Red) - running north to south from *Letňany* to *Háje*

Tickets:

Tickets are sold at yellow ticket machines (also in English, coins only), at ticket offices located at some metro stations, in newspapers stands, and at tourist information centers. Each ticket must be validated upon the entrance to the metro station or in the tram / bus to mark the start of the validity period.

Single ticket (one use/short ride) costs 18 CZK. This ticket can only be used one time on one type of transportation. It is valid either for 20 minutes from validation on trams and buses or for up to 5 metro stations, allowing transfers between different metro lines. This ticket is not valid on night trams and buses, on the *Petřín* funicular and on ferries.

Transfer ticket (multiple uses/long ride) costs 26 CZK. This ticket can be used on any type of public transportation and allows transfers between different types of transport (metro to tram, tram to bus, etc.) for up to 75 min from validation. This ticket can be also purchased from a bus driver for 30 CZK.

Taxi

You can find the contacts for recommended non-stop taxi call centres in Prague at the official website of Prague: <http://www.praguewelcome.cz/en/>

Currency

The currency is the Koruna (CZK). 1 EUR is approximately 26 CZK, 1 USD is approximately 18 CZK. Money can be exchanged at numerous Exchange offices and in banks, as well as in some hotels, shops and restaurants, Euros can be often used as well (ask in advance). In most shops and restaurants, credit cards can be used.

Emergency call

112

Call to the Czech Republic

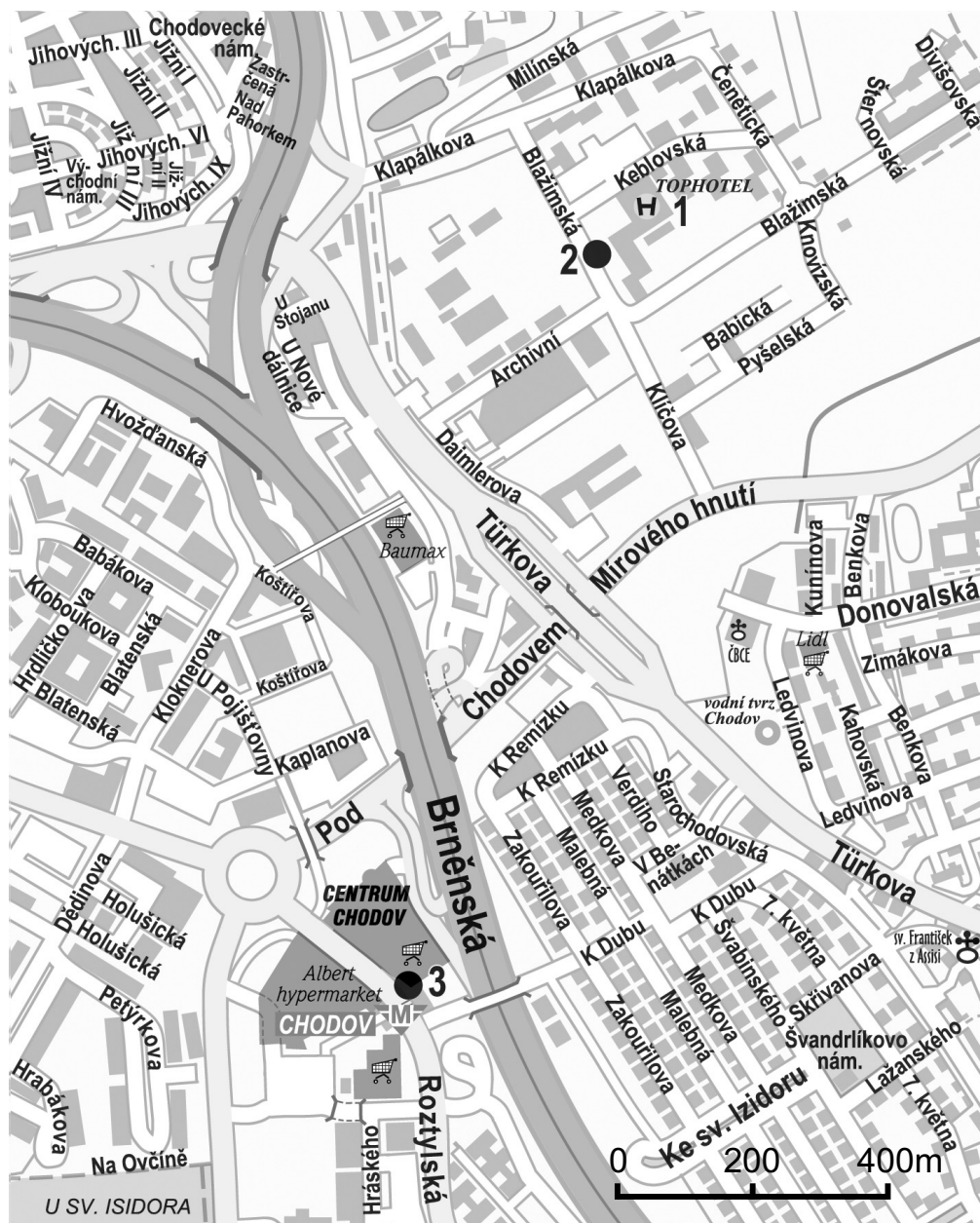
The international country code of the Czech Republic is 420 (dial either 00420 or +420 if not already included at the beginning of the telephone number).

Electricity

230 Volts/50 Hz, type E electrical outlet. You can buy plug converters in electronic stores.

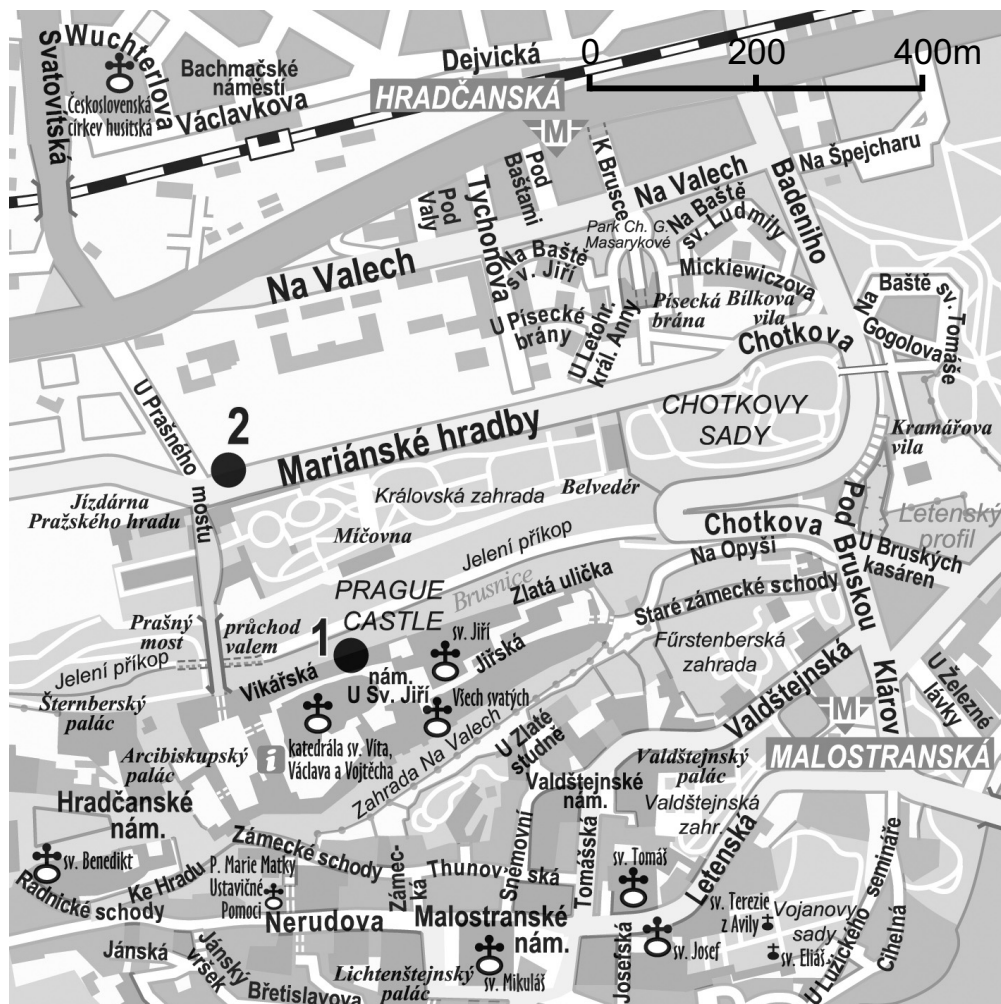
PRACTICAL INFORMATION

CONFERENCE VENUE AND SURROUNDINGS



- 1 – TopHotel Prague, conference venue
- 2 – Bus stop of bus 115 “Městský archiv”
- 3 – Bus stop of bus 115 “Chodov” going to the conference venue; transfer from / to metro line C, shopping centre

GALA DINNER



1 – Vikárka restaurant, Gala dinner

2 – Tram stop “Pražský hrad” (tram 22 from the “Malostranská” station of metro line A)

Imprint

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2011. Ecology of Soil Microorganisms - Book of abstracts, Prague, April 27 – May 1, 2011, 384 pp.

SCIENTIFIC PROGRAMME

WEDNESDAY, 27 APRIL 2011

12:00-16:30 *Registration opens*

16.30 – 18.45 Opening session

16.30 **Welcome** - Petr Baldrian (Praha, Czech Republic)

17:15 **Keynote:** Christa Schleper - Ammonia Oxidizing Archaea in Soils: New Discovery of an Old Group

18:00 **Keynote:** Jan Dirk van Elsas - Soil fungi provide hospitable niches for soil bacteria - mechanisms and concepts

19:00-21:30 *Welcome reception*

THURSDAY, 28 APRIL 2011

8:00-11:00 *Registration*

Microbial Nutrient Cycling and Biogeochemistry (M. Schlöter)

9:00 Paolo Nannipieri - Enzymes activities and detection and expression of genes codifying enzymes

9:25 James Prosser - Archaeal ammonia oxidisers in soil: So what?

9:50 Roey Angel - Methanogens are globally ubiquitous in upland soils and become active even in the presence of oxygen

10:05 Philippe Constant - High affinity H₂ oxidizing bacteria - A new paradigm for the soil uptake of atmospheric H₂

10:20 Sara Hallin - Spatial distribution of ammonia oxidizing bacteria and archaea across a 44-hectare farm related to ecosystem functioning

10:35-11:10 *Coffee*

11:10 Donald Zak - Microbial responses to a changing environment: Implications for the future functioning of terrestrial ecosystems

11:35 Laurent Philippot - Bridging microbial community ecology and nitrogen cycling in soil

SCIENTIFIC PROGRAMME

12:00 Johannes Rousk - Soil pH effects on the composition and growth of soil fungal and bacterial communities, their interaction, and the consequence for low molecular weight C turnover and respiration

12:15 Karolina Tahovská - Are microorganisms adapted for mineral N assimilation in N saturated soils?

12:30 Stefanie Töwe - Abundances and potential activities of nitrogen cycling microbial communities along a chronosequence of a glacier forefield

12:45-14:15 *Lunch*

Methods in Soil Microbial Ecology: Challenges and Limitations (H. Insam)

14:15 Michael Schlöter - Archaeal activities - Challenges and limitations of the molecular toolbox

14:40 Tim Urich - Studying the structure and functioning of soil (microbial) communities using metatranscriptomics

15:05 Elizabeth Wellington - Revealing the soil metasecretome

15:30 Giancarlo Renella - Soil proteomics: progresses through model studies

15:55 Olena Moshynets - A new plastic sampling method for the comprehensive analysis of microbial community architecture

16:10-16:40 *Coffee*

Fungi in the Soil Microbial Community: Symbioses, Competition, Antagonism (P. Baldrian)

16:40 Lynne Boddy - Mycelial interactions: major drivers of fungal community dynamics and function

17:05 Björn Lindahl - Fungi as regulators of humus accumulation in boreal forests

17:30 Emilia Hannula - Tracking carbon flow in the potato rhizosphere to fungal communities using stable isotope probing

17:45 Remy Hillekens - Tracking the composition and function of soil-borne Basidiomycota communities

18:00 Karina Clemmensen - Fungal communities and their functioning in the Boreal-Arctic transition

SCIENTIFIC PROGRAMME

18:15-19:45 **Poster session I** (Microbial Nutrient Cycling and Biogeochemistry - Fungi in the Soil Microbial Community: Symbioses, Competition, Antagonism -Interaction among Micro- and Macroorganisms in Soils - Microbes in the Changing Environment: Global Climate Change and Soils under Human Impact)

FRIDAY, 29 APRIL 2011

Agricultural Soils: Biodiversity and Functioning (P. Nannipieri)

9:00 Dana Elhottová - Animal excrements - drivers of microbial diversity in soil

9:25 Christoph Tebbe - Microbial diversity on soil particle surfaces and their response to soil organic matter

9:50 Erick Cardenas - Microbial community analysis of the rhizosphere of two biofuel crops

10:05 Andrew Bissett - Long term land use effects on the structure and function of soil microbial communities

10:20 Pierre-Alain Maron - Relationship between microbial diversity and soil organic matter turnover

10:35-11:10 *Coffee*

11:10 Soren Sorensen - Investigation of prokaryotic diversity by tag-encoded amplicons pyrosequencing of soils with urban waste fertilizer and manure added

11:35 Heike Schmitt - Antibiotic resistance in the environment: manure and waste water as sources for resistance genes in soil and water

12:00 Gera Hol - Microbial diversity and agricultural soil ecosystem services

12:15 Jan Jansa - Do microbes have geography or environment just selects? On the arbuscular mycorrhizal fungi and quantitative PCR

12:30 Andreas Reim - Counter-gradients of methane and oxygen: how methanotrophs shape their environment and limit their own activity

12:45-14:15 *Lunch*

SCIENTIFIC PROGRAMME

Microbial Diversity and Processes in Forest Soils (L. Boddy)

- 14:15 Petr Baldrian - Decomposition processes in forest soils: identification of active microorganisms
- 14:40 Angela Sessitsch - The effect of seasonal changes and resource limitation on forest soil communities
- 15:05 Hakan Wallander - The importance of ectomycorrhizal fungi for carbon sequestration in forest soil
- 15:30 Kathrin Ackermann - Nitrogen cycling in natural and artificial nutrient gradients in northern boreal forests
- 15:45 Petra Fransson - Improving process-level understanding of the roles of fungal mycelia in carbon sequestration and release
- 16:00 Carolyn Churchland - A novel stem-injection stable-isotope-labelling and probing technique successfully traces carbon belowground in 22-year-old Sitka spruce

16:15-16:50 *Coffee*

Interaction among Micro- and Macroorganisms in Soils (D. Elhottová)

- 16:50 Marc-André Selosse - How mycorrhizal fungi may change plant's life: mycoheterotrophy and mixotrophy
- 17:15 Martin Zobel - Diversity patterns of AM fungi and plants - is there any link?
- 17:40 Jan Frouz - Soil fauna slow down microbial decomposition of organic matter
- 17:55 Jennifer Krumins - Rhizosphere herbivory and microbial communities in soil
- 18:15-19:45 **Poster session II** (Soil Organic Matter Decomposition and Enzymes in the Soil Environment: From Molecules to Communities - Agricultural Soils: Biodiversity and Functioning - Microbial Diversity and Processes in Forest Soils - Microbial Biodegradation Processes - Methods in Soil Microbial Ecology: Challenges and Limitations)

SCIENTIFIC PROGRAMME

SATURDAY, 30 APRIL 2011

Microbes in the Changing Environment: Global Climate Change and Soils under Human Impact (T. Cajthaml)

9:00 Heribert Insam - Greenhouse gas emission and anaerobic digestates

9:25 George Kowalchuk - Drivers of soil-borne microbial diversity

9:50 Erland Bååth - Temperature effects on bacterial and fungal growth in soil

10:15 Serita Frey - Linking microbial dynamics and soil carbon storage in a temperate forest exposed to chronic nitrogen additions

10:30 Verena Hammerl - Impact of extreme weather events on the microbial function of soil

10:45 Alica Chroňáková - Aerobic methane oxidizers across a gradient of cattle impact in an upland soil

11:00-11:30 *Coffee*

11:30 Kornelia Smalla - Unravel the complex response of soil bacteria to phenanthrene - potentials and limitations of the molecular methods used

11:55 Stephanie Reischke - Temperature dependence: time shift in fungal and bacterial growth

12:10 Petra Straková - Carbon dynamics in peatlands under changing hydrology: Effects of water level drawdown on litter quality, microbial activity and community composition and litter decomposition rates

12:25 Allan Strand - Influence of rhizomorph presence upon the persistence of temperate forest fine roots: summary of a 10 year FACE study

12:40 Sylvie Nazaret - Soils as reservoir of opportunistic human bacterial pathogens and impact of agricultural practices

12:55 Klára Řeháková - Phototrophs in the high altitude – their ecological demands and roles

13:10 Ursula Peintner - High soil-fungal activity under snow at soil temperatures below 0°C

13:25-14:55 *Lunch*

19:30-22:30 *Conference dinner*

SCIENTIFIC PROGRAMME

SUNDAY, 1 MAY 2011

Microbial Biodegradation Processes (M. Hofrichter)

9:00 Tomáš Caitham - Biodegradation of polychlorinated biphenyls by ligninolytic fungi: application and insight into physiology of the degradation

9:25 Matthias Kaestner - Humus genesis reviewed - microbial biomass as a significant source for soil organic matter formation

9:50 Aurelie Cebron - Influence of plants and root exudates on PAH-degrading bacteria in aged-polluted soils

10:05 Lukas Wick - Relevance of fungal networks for the bioremediation of organic contaminants

10:20 Ondřej Uhlík / Martina Macková - Phylogenetic and metabolic diversity of aromatics-utilizing bacteria / Alteration of microbial community structure in contaminated soil by different plant species

10:40-11:10 *Coffee*

Soil Organic Matter Decomposition and Enzymes in the Soil Environment: From Molecules to Communities (J. D. van Elsas)

11:10 Martin Hofrichter - New fungal peroxidases, their biochemical properties, transcription and expression in wood and leaf-litter

11:35 Matthew Wallenstein - Extracellular enzymes in soils: what do we really know?

12:00 Kathrin Riedel - Who is Who in litter decomposition: Metaproteomics reveals major microbial players and their functions related to biogeochemistry and climate

12:25 Evgenia Blagodatskaya - Carbon use efficiency depends on microbial growth strategies in the rhizosphere and root-free soil

12:40 Mary Beth Leigh - Lignocellulose utilizing microorganisms in Alaskan boreal forest soil

12:55 Inga Bödeker - Class II peroxidases from ectomycorrhizal fungi in soil organic matter decomposition

13:10 Ellen Kandeler - Multiple-scale distribution and function of soil microorganisms

13:25-14:00 Conference closing

14:00-14:30 *Takeaway lunch*