

The 21st International Symposium on  
Environmental Biogeochemistry  
October 13-18, 2013  
Wuhan, China  
(ISEB2013)

## Program Schedule

## **Executive Board**

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Yuan, Youliang  
Huang, Qiaoyun  
Tan, Wenfeng  
Liu, Zhen  
Wei, Peng  
Feng, Xionghan  
Cai, Peng  
Rong, Xingmin  
Dai, Ke  
Huang, Chuanqin

## **International Scientific Committee**

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Blum, Winefred  
Bonch-Osmolovskaya,  
Elizaveta  
Budakoglu, Murat  
Capone, Doug  
Chen, Yona  
Davis, Jim  
Daughney, Chris  
deNobili, Maria  
Dilly, Oliver  
Ehrlich, Henry  
Franzmann, Peter  
Faganeli, Jadran  
Ferris, Grant  
Fortin, Danielle  
Fritze, Hannu  
Fowle, Dave  
Gadd, Geoffrey  
Ghiorse, William  
Glasauer, Susan  
Gorbushina, Anna  
Gorby, Yuri  
Hallberg, Rolf  
Hattori, Tsutomu  
Hines, Mark  
Huang, Qiaoyun  
Inubushi, Kazuyuki  
Joye, Samantha  
Karczewska, Anna  
Kato, Kenji  
King, Gary  
Kitajima, Fumio  
Kniewald, Goran  
Krumbein, Wolfgang  
Leyval, Corrine  
Lloyd, Jon  
Mamilov, Anvar  
Martikainen, Pertti  
Miller, Larry  
Miano, Ted  
Mountain, Bruce  
Munch, Jean Charles  
Nealson, Ken  
Ohta Hiroyuki  
Omelon, Chris  
Oremland, Ron  
Orphan, Vicky  
Parkes, John  
Phoenix, Vernon  
Popa, Radu  
Pedersen, Karsten  
Redden, George  
Roberts, Jennifer  
Rosling, Anna  
Senesi, Nicholas  
Staunton, Siobhan  
Stolz, John  
Stotzky, Guenther  
Summers Engel,  
Annette  
Takahashi, Yoshio  
Tebo, Brad  
Templeton, Alexis  
Treude, Tina  
VanCappellen, Philippe  
Warren, Leslie  
Weber, Jerzy  
Webster, Jenny  
Weisener, Chris  
Wilkomirski, Boguslaw

## Welcome Message

Dear Colleagues,

On behalf of organizing committee of ISEB2013, it is our great pleasure to welcome you to attend the 21st International Symposium on Environmental Biogeochemistry sponsored by the International Society for Environmental Biogeochemistry (ISEB). Recent ISEB symposia were held in the United States of America (2005), New Zealand (2007), Germany (2009) and Turkey (2011), respectively. The ISEB2013 conference takes place in Huazhong Agricultural University, Wuhan, China.

Over the past months we have received 150 abstracts submitted from 25 different countries. The meeting is composed of seven sessions with invited, oral and poster presentations. You will find that the content covers a wide range of disciplines including environmental science, microbiology, chemistry, soil science, geoscience, limnology, ecology, marine and atmospheric sciences both from fundamental and applied perspectives. We have also arranged mid-term field excursion and post-conference tours. A special issue of the selected papers from both the oral lectures and posters of ISEB2013 will be published in Geomicrobiology Journal after the conference. We would like to thank all of those who provided financial support for this symposium.

We wish that ISEB2013 can offer an excellent program and a fantastic opportunity for you to interact with colleagues and friends. Hope you have a fruitful stay in Wuhan.

With best regards!

Qiaoyun Huang and Wenfeng Tan

Co-Chairs of ISEB2013  
Faculty of Resources and Environment  
Huazhong Agricultural University  
Wuhan 430070  
China

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## ISEB2013 Program Overview

	Morning	Afternoon	Evening
Sunday Oct 13	On-site registration		Reception (18:00-20:00)
Monday Oct 14	Opening ceremony,  Session 6	EB Meeting (13:00-14:00)  Session 1	
Tuesday Oct 15	Session 3	IC meeting (13:00-14:20)  Session 5	Banquet (18:30-20:30)
Wednesday Oct 16	Field excursion		
Thursday Oct 17	Session 7	Session 4	
Friday Oct 18	Session 2, Closing ceremony	Post-conference tour	

# ISEB2013 Technical Schedule

<b>Sunday, October 13</b>	
09:00-22:00	On-site registration
18:00-20:00	Reception
<b>Monday, October 14</b>	
08:30-09:10	Opening ceremony  Moderators: Qiaoyun Huang, Wenfeng Tan
09:10-09:40	Photographing and tea break
Session 6 Advances in cross-disciplinary biogeochemical methods	
Moderators: Anna A Gorbushina, Jens Kallmeyer	
09:40-10:20	<b>Invited lecture: Global Distribution of Microbial Abundance and Biomass in Subseafloor Sediment</b> <u>Jens Kallmeyer</u> <i>Helmholtz Centre Potsdam-GFZ, Germany</i>
10:20-10:40	<b>Multiple syntrophic relationships within a microbial community supported by anaerobic methane oxidation coupled with sulfate reduction</b> <u>Fengping Wang</u> , Ying Chen, Yu Zhang, Ying He and Xiang Xiao <i>State Key Laboratory of Microbial Metabolisms, Shanghai JiaoTong University, Shanghai, China</i>
10:40-11:00	<b>Quantification of microbially influenced mineral weathering: experiments with model biofilms</b> Franz Seiffert, Ute Kalbe, Ralf Milke, Friedhelm von Blanckenburg, <u>Anna A. Gorbushina</u> <i>Department of Materials and Environment, Federal Institute for Materials Research and Testing, Berlin, 12205, Germany</i>
11:00-11:20	<b>Benthic microbial methane filter on trial: A new sediment-flow-through system to investigate biogeochemical turnover</b> <u>Philip Steeb</u> , Peter Linke, Tina Treude <i>Helmholtz-Centre for Ocean Research GEOMAR, Kiel 24148, Germany</i>
11:20-11:40	<b>Invasibility of chemotrophic species: a combination of thermodynamic and kinetic approach</b>

	<p><u>Mayumi Seto</u>  <i>Department of Information &amp; Computer Sciences, Faculty of Sciences, Nara Women's University, Kita-Uoya Nishimachi, Nara 630-8506, Japan</i></p>
<b>12:00-14:00</b>	<b>Lunch and Posters</b>
<b>13:00-14:00</b>	<b>EB Meeting</b>
<p>Session 1 Microbial and biochemical transformation of metals and metalloids</p>	
<p>Moderators: Jeremy B Fein, Luuk K Koopal</p>	
14:00-14:40	<p><b>Invited lecture: Using surface complexation modeling to quantify bioavailability of metals to bacteria</b>  <u>Jeremy B Fein</u>  <i>Civil Engineering and Geological Sciences, University of Notre Dame, USA</i></p>
14:40-15:00	<p><b>Modeling metal interactions with particulate soil components</b>  <u>Luuk K. Koopal</u>  <i>Laboratory of Physical Chemistry and Colloid Science, Wageningen University and Research, Wageningen, The Netherlands</i></p>
15:00-15:20	<p><b>Microbial accumulation of selenium(IV) and aluminium(III) bioleached from various natural materials in presence of humic acids</b>  <u>Martin Urk</u>, Ivana Pifková, Katarína Gardošová, Marek Bujdoš, Peter Matúš, Lucia Kořenková, Marin Senila  <i>Comenius University in Bratislava, Faculty of Natural Sciences, Bratislava, Slovak Republic</i></p>
15:20-15:40	<p><b>Combined use of phytoremediation and biochar for soil cadmium remediation</b>  Huanping Lu, <u>Jorge Paz-Ferreiro</u>, Shenglei Fu and Zhian Li  <i>South China Botanical Garden, Guangzhou, 510650, China</i></p>
15:40-16:00	<p><b>Bioavailability of heavy metals (Cd, Cr, Ni, Pb) to French Marigold (<i>Tagetes patula</i>) in relation to soil properties</b>  <u>S.K.Singh</u> and Biswojit Biswal  <i>Department of Soil Science and Agricultural Chemistry, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi-221 005, India</i></p>
<b>16:00-16:20</b>	<b>Tea break</b>
<p>Moderators: Timothy R. McDermott, Christopher Rensing</p>	
16:20-17:00	<p><b>Invited lecture: The arsenic biogeochemical cycle</b>  <u>Barry P. Rosen</u>  <i>Florida International University, USA</i></p>

17:00-17:20	<p><b>Cellular Regulatory Controls of Microbial Arsenite Oxidation.</b>  <u>Timothy R. McDermott</u>, Gejiao Wang, Chris Rensing and Brian Bothner  <i>Dept. Land Resource and Environmental Sciences, Montana State University,  Bozeman MT, USA</i></p>
17:20-17:40	<p><b>Coupling mechanism between arsenite oxidation and arsenic replacing phosphorus in <i>Agrobacterium tumefaciens</i> GW4</b>  Qian Wang, Dong Qin, Shengzhe Zhang, Lu Wang, Jingxin Li, Christopher Rensing, Timothy R. McDermott and <u>Gejiao Wang</u>  <i>State Key Laboratory of Agricultural Microbiology, College of Basic Sciences,  College of Life Science and Technology, Huazhong Agricultural University,  Wuhan, China</i></p>
17:40-18:00	<p><b>CusCFBA-mediated periplasmic copper handling in <i>Escherichia coli</i></b>  <u>Christopher Rensing</u> and Eun-Hae Kim  <i>Department of Plant and Environmental Science, University of Copenhagen,  Frederiksberg, Denmark</i></p>
<b>18:00-19:30</b>	<b>Dinner</b>



<b>Tuesday, October 15</b>	
Session 3 Biogeochemical cycling in marine, fresh water and terrestrial systems	
Moderators: Christopher R. Omelon, Jacques Berthelin	
08:20-09:00	<p><b>Invited lecture: Nano-scale processes at bacterial cell surfaces</b></p> <p><u>Grant Ferris</u> <i>Dept. of Earth Sciences, University of Toronto, Canada</i></p>
09:00-09:20	<p><b>Seasonal dynamics of colloidal organic matter composition in coastal waters (Gulf of Trieste, northern Adriatic Sea)</b></p> <p><u>Katja Klun</u>, Primož Šket, Jadran Faganeli <i>National Institute of Biology, Marine Biology Station, Fornače 41, Piran, 6330, Slovenia</i></p>
09:20-09:40	<p><b>Photosynthesis and respiration dynamics in high Arctic cryptoendolithic environments</b></p> <p><u>Christopher R. Omelon</u>, Nadia C.S. Mykytczuk, and Philip C. Bennett <i>The University of Texas at Austin, Department of Geological Sciences, Austin, USA</i></p>
09:40-10:00	<p><b>Stable isotopes as a tool for source identification of lipids in oxic and anoxic sediments of Lake Bled (NW Slovenia)</b></p> <p><u>Nives Ogrinc</u>, Marinka Gams Petrišič and Jadran Faganeli, <i>Dept. of Environmental Sciences, Jožef Stefan Institute, 1000 Ljubljana, Slovenia</i></p>
<b>10:00-10:20</b>	<b>Tea break</b>
Moderators: Jerzy Weber, Goran Kniewald	
10:20-10:40	<p><b>The Krka river watershed – geological structure and environmental management issues</b></p> <p><u>Goran Kniewald</u> <i>Division of Marine and Environmental Research, Rudjer Boskovic Institute, POB 180,10002 Zagreb, Croatia</i></p>
10:40-11:00	<p><b>Behavior and fate of the main organic constituents in the major organic matter compartments of polluted and non polluted river sediments during their aerobic and anaerobic biodegradation</b></p> <p><u>Jacques Berthelin</u>, Isabelle Auvray, Norbert Hertkorn, Moritz Frommberger, Philippe Schmitt-Kopplin</p>

	<i>Laboratoire Interdisciplinaire des Environnements Continentaux (LIEC), UMR 7360 CNRS, France</i>
11:00-11:20	<b>Microbial benthic nitrogen fixation inside and below the Peruvian oxygen minimum zone</b> <u>Jessica Gier</u> , Stefan Sommer, Andy Dale, Ruth Schmitz-Streit and Tina Treude <i>GEOMAR Helmholtz Centre for Ocean Research Kiel, 24105, Germany</i>
11:20-11:40	<b>Bacterial survival in compacted clays</b> <u>Andreas Bengtsson</u> , Johanna Edlund, Karsten Pedersen <i>Department of Microbiology, Microbial Analytics Sweden AB, Mölnlycke, Sweden</i>
11:40-12:00	<b>Classification of nitrate polluting activities through clustering of isotope mixing model outputs</b> <u>Dongmei Xue</u> , Zhongliang Wang, Bernard De Baets and Pascal Boeckx <i>Tianjin Key Laboratory of Water Resources and Water Environment, Tianjin Normal University, Tianjin 300387, China</i>
<b>12:00-14:20</b>	<b>Lunch and Posters</b>
<b>13:00-14:20</b>	<b>IC meeting</b>
<b>Session 5 Biogeochemical interfaces in soils</b>	
	Moderators: Kazuyuki Inubushi, Jizheng He
14:20-15:00	<b>Invited lecture: Biogeochemical Interfaces in Soil: Formation, properties, and function</b> <u>Kai U Totsche</u> <i>Lehrstuhl für Hydrogeologie, Institut für Geowissenschaften, Friedrich-Schiller-Universität Jena, Germany</i>
15:00-15:20	<b>Underestimation of Glomalin related soil protein in French forest soils due to interference in the Bradford assay</b> <u>Siobhán Staunton</u> , Priscila Jorge-Araújo, and Hervé Quiquampoix <i>Eco &amp; Sols, INRA, 34060 Montpellier, France</i>
15:20-15:40	<b>Biogeochemical Processes at Soil-Root Interface</b> <u>Antonio Violante</u> <i>Department of Agricultural Sciences, Università degli Studi di Napoli Federico II, Portici (Napoli), Italy</i>
15:40-16:00	<b>Survival of <i>Escherichia coli</i> O157:H7 in soils under different cultivation pattern and the response of soil microbial community to its invasion</b> <u>Zhiyuan Yao</u> , Haizhen Wang, Jianjun Wu, Jianming Xu <i>Zhejiang Provincial Key Laboratory of Subtropical Soil and Plant Nutrition, Institute of Soil and Water Resources and Environmental Science, Zhejiang University, Hangzhou 310058, China</i>

<b>16:00-16:20</b>	<b>Tea break</b>
	Moderators: Antonio Violante, Siobhán Staunton
16:20-17:00	<b>Invited lecture: New insights into the microbial mechanisms of soil nitrification</b> <u>Jizheng He</u> <i>Research Centre for Eco-environmental Sciences, Chinese Academy of Sciences, China</i>
17:00-17:20	<b>Soil microbial biomass in Andosol and buried Paleosol for C storage index</b> <u>Kazuyuki Inubushi</u> and YuHua Kong <i>Graduate School of Horticulture, Chiba University, Matsudo 2718510, Chiba, Japan</i>
17:20-17:40	<b>Which are dominant drivers of ammonia oxidizer communities in acidic soils?</b> <u>Huaiying Yao</u> , Yaying Li, Ying Huang, C D Campbell, S J Chapman, T E Freitag, G W Nicol, J I Prosser and B K Singh <i>Institute of Urban Environment, Chinese Academy of Sciences, Xiamen 361021, China</i>
17:40-18:00	<b>Estimation of carbon stocks in soil of subtropical chirpine forest of Pakistan</b> Luqman Riaz, Irshad Ahmad Khan, Syed Moazzam Nizami, <u>Malik Tahir Hayat</u> , Tariq Mehmood <i>Department of Environment Sciences, PMAS Arid Agriculture University Rawalpindi-46300, Pakistan</i>
<b>18:30-20:30</b>	<b>Banquet</b>

<b>Wednesday, October 16</b>	
08:00-18:00	Field excursion
18:00-19:30	Dinner
<b>Thursday, October 17</b>	
Session 7 Anthropogenic impact on environmental biogeochemistry	
	Moderators: Jadran Faganeli, Chengrong Chen
08:20-09:00	<p><b>Invited lecture: Ecological and genomical features of rice cluster I methanogens from rice paddy soil</b></p> <p><u>Yahai Lu</u>  <i>College of Resources and Environment, China Agricultural University, China</i></p>
09:00-09:20	<p><b>Nitrous oxide and carbon dioxide emissions over winter from manure-amended soils under rainfed and irrigated conditions</b></p> <p><u>Xiying Hao</u>  <i>Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, Alberta, Canada</i></p>
09:20-9:40	<p><b>Starving catchments: carbon bioavailability limits stream mineralization processes in a gully eroding headwater catchment of south-eastern Australia.</b></p> <p><u>Alexandra Garzon-Garcia</u>, Stuart E. Bunn, Jon M. Olley and Fred Oudyn  <i>Australian Rivers Institute, Griffith University, 170 Kessels Road, Nathan, Brisbane, QLD 4111, Australia</i></p>
9:40-10:00	<p><b>Knowns and unknowns about biochar as a strategy to decrease soil N<sub>2</sub>O emissions: A systematic review of the published literature</b></p> <p><u>Maria Luz Cayuela</u>, Lukas van Zwieten, Bhupinderpal Singh, Simon Jeffery, Asunci3n Roig and Miguel Angel S3nchez-Monedero  <i>Department of Soil and Water Conservation and Waste Management. CEBAS-CSIC. Campus Universitario de Espinardo, Spain</i></p>
<b>10:00-10:20</b>	<b>Tea break</b>
	Moderators: Yuri Gorby, Yahai Lu
10:20-11:00	<p><b>Invited lecture: Biogeochemical cycles along chronosequence: some new findings from Cooloola sequence</b></p> <p><u>Chengrong Chen</u>  <i>Griffith University, Australia</i></p>

11:00-11:20	<p><b>Temporal Dynamics of Greenhouse Gas Fluxes under Three Adjacent Land-use Types in Central Japan</b></p> <p><u>Yuhua Kong</u>, Mirai Watanabe and Kazuyuki Inubushi  <i>Graduate School of Horticulture, Chiba University, Matsudo, National Institute for Environmental Studies, Tsukuba, Japan</i></p>
11:20-11:40	<p><b>Increased precipitation rather than warming drive soil carbon and nitrogen cycling but not soil recalcitrant carbon in a temperate grassland</b></p> <p><u>Xiaoqi Zhou</u>, Chengrong Chen  <i>Environmental Futures Centre and Griffith School of Environment, Griffith University, Nathan 4111, Australia</i></p>
11:40-12:00	<p><b>Nitrous oxide and carbon dioxide emissions from two acidic soils as affected by soil pH after dolomite application</b></p> <p><u>Muhammad Shaaban</u>, Hu Ronggui, Peng Qi-an and Lin Shan  <i>College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China</i></p>
<b>12:00-14:00</b>	<b>Lunch and Posters</b>
Session 4 Mineral-microorganism interactions	
	Moderators: Philip C. Bennett, Hailiang Dong
14:00-14:40	<p><b>Invited lecture: Geomycology: fungal roles in transformations of metals and minerals</b></p> <p><u>Geoffrey M Gadd</u>  <i>Division of Molecular Microbiology, College of Life Sciences, University of Dundee, UK</i></p>
14:40-15:00	<p><b>Mineralogical control of microbial accumulation and diversity on rock surfaces</b></p> <p>Aaron A. Jones, Christopher R. Omelon and <u>Philip C. Bennett</u>  <i>The University of Texas at Austin, Dept. of Geological Sciences, Austin, USA</i></p>
15:00-15:20	<p><b>Deposition and Survival of <i>Escherichia coli</i> O157:H7 on Clay Minerals in a Parallel Plate Flow System</b></p> <p><u>Peng Cai</u>, Qiaoyun Huang and Sharon L. Walker  <i>State Key Laboratory of Agricultural Microbiology, Huazhong Agricultural University, Wuhan 430070, China</i></p>
15:20-15:40	<p><b>Spatial Changes of Bacterial Community and Mineral Species along Chemical Gradient in Iron-rich Sediment</b></p> <p><u>Sakiko Kikuchi</u>, Hiroko Makita, Fumito Shiraishi and Yoshio Takahashi  <i>Graduate School of Science, Hiroshima University, Japan</i></p>

15:40-16:00	<p><b>Magnetite Substitutes for C-Type Cytochrome in Extracellular Fe(III) Oxide Reduction and Interspecies Electron Exchange</b></p> <p><u>Fanghua Liu</u>, Pravin M. Shrestha, Amelia-Elena Rotaru, Nikhil S. Malvankar, Kelly P. Nevin and Derek R. Lovley</p> <p><i>Department of Microbiology, University of Massachusetts, Amherst, Massachusetts 01003, USA</i></p>
<b>16:00-16:20</b>	<b>Tea break</b>
	Moderators: Geoffrey M Gadd, Karsten Pedersen
16:20-17:00	<p><b>Invited lecture: Mineral-microbe interactions and implications for heavy metal remediation</b></p> <p><u>Hailiang Dong</u></p> <p><i>Department of Geology and Environmental Earth Science, Miami University, USA</i></p>
17:00-17:20	<p><b>Exocellular secretion produced by <i>Bacillus mucilaginosus</i> accelerate the weathering of potassium minerals</b></p> <p><u>Bin Lian</u>, Ye Du, Bo Xiao, Congqiang Liu</p> <p><i>Jiangsu Key Laboratory for Microbes and Functional Genomics, College of Life Sciences, Nanjing Normal University, Nanjing 210097, China</i></p>
17:20-17:40	<p><b>Bacterial Adhesion and Biofilm Formation on Functionalized Surface Coatings</b></p> <p><u>W. Norde</u>, A.K. Muszanska, H.C. van der Mei, H.J. Busscher</p> <p><i>Department of Biomedical Engineering, W.J. Kolff Institute, University Medical Center Groningen and University of Groningen, The Netherlands</i></p>
17:40-18:00	<p><b>Microbes for upgradation of iron ore slimes</b></p> <p><u>Abhilash</u>, B. D. Pandey, S. Sarkar, P. K. Banerjee</p> <p><i>CSIR-National Metallurgical Laboratory (CSIR-NML), Jamshedpur, India</i></p>
<b>18:00-19:30</b>	<b>Dinner</b>

<b>Friday, October 18</b>	
Session 2 Biodegradation of organic contaminants	
	Moderators: Michael D. Aitken, Frank Loeffler
08:20-09:00	<p><b>Invited lecture: Nitrogen cycling – New twists on an old tale.</b>  <u>Frank Loeffler</u>  <i>Department of Microbiology, The University of Tennessee, USA</i></p>
09:00-9:20	<p><b>Towards an Understanding of the Role of Humin as a Solid-phase Electron Mediator for Anaerobic Respiration.</b>  <u>Chunfang Zhang</u>, Lizhen Ye, Demachi Toyoko, Daisuke Suzuki, Arata  <i>Katayama EcoTopia Science Institute, Nagoya University, Chikusa, Nagoya 464-8603, Japan</i></p>
09:20-09:40	<p><b>Identification of Phenanthrene-Metabolizing Bacteria in Soils by DNA-based Stable Isotope Probing.</b>  <u>Chunling Luo</u> and Longfei Jiang  <i>State Key Laboratory of Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China</i></p>
<b>09:40-10:00</b>	<b>Tea break</b>
10:00-10:40	<p><b>Invited lecture: Challenges in understanding and influencing the biodegradation of PAHs in contaminated soil</b>  <u>Michael D. Aitken</u>  <i>Dept. of Environmental Sciences and Engineering, The University of North Carolina at Chapel Hill, USA</i></p>
10:40-11:00	<p><b>Soil remediation with a microbial community established on a carrier: Strong hints for microbial communication during 1,2,4-Trichlorobenzene degradation</b>  <u>Fang Wang</u>, Philippe Schmitt-Kopplin, Jean C. Munch, Xin Jiang, Reiner Schroll  <i>State Key Laboratory of Soil and Sustainable Agriculture, Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China</i></p>
11:00-12:00	<p>Closing Ceremony</p> <p style="text-align: right;">Moderator: Grant Ferris</p>
<b>12:00-13:30</b>	<b>Lunch</b>
14:00-	Post-conference tour

# Poster Presentations

## Session 1 Microbial and biochemical transformation of metals and metalloids

### 1. **Impact of microbial processes on bismuth mobility**

Katarína Boriová, Martin Urík, Marek Bujdoš, Slavomír Čerňanský and Peter Matúš  
*Institute of Laboratory Research on Geomaterials, Faculty of Natural Sciences, Comenius University in Bratislava, Mlynská dolina, Bratislava 842 15, Slovakia*

### 2. **Sorption of various heavy metals onto humic acids immobilized in alginate pellets or fungal biomass**

Lucia Kořenková, Martin Urík, Katarína Gardošová, Marek Bujdoš, Peter Matúš  
*Institute of Laboratory Research on Geomaterials, Faculty of Natural Sciences, Comenius University, Mlynska dolina, Bratislava, Slovak Republic*

### 3. **Adsorption and recovery of gold ion using biogenic Mn oxides produced by *Lysinibacillus* sp. M14**

Gejiao Wang, Hui Wang, Yuanjun Pei, Dandan Xiong, Shuijiao Liao  
*State Key Laboratory of Agricultural Microbiology, College of Basic Sciences, College of Life Science and Technology, Huazhong Agricultural University, Wuhan, 430070, China*

### 4. **Removal and recovery of toxic silver ion using deep-sea bacterial biogenic manganese oxides**

Yuanjun Pei, Xiao Chen, Dandan Xiong, Shuijiao Liao and Gejiao Wang  
*State Key Laboratory of Agricultural Microbiology, College of Basic Sciences, College of Life Science and Technology, Huazhong Agricultural University, Wuhan, 430070, China*

### 5. **Isolation of cadmium resistant filamentous fungi and the biosorption mechanisms for Cd(II), Cu(II) and Cr(VI)**

Lu Xia, Wenli Chen, Qiaoyun Huang  
*State Key Laboratory of Agricultural Microbiology, Huazhong Agricultural University, Wuhan 430070, China*

### 6. **Lead adsorption to soil fulvic and humic acids: NICA-Donnan modeling and XAFS spectroscopy**

Juan Xiong, Luuk K. Koopal, LinChuan Fang, MingXia Wang, Wei Zhao, Fan Liu, XiongHan Feng, LiPing Weng, WenFeng Tan  
*College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*

### 7. ***Paenirhodobacter enshiensis* gen. nov., sp. nov., a non-photosynthetic bacterium isolated from soil and emended description of the genera *Rhodobacter* and *Haematobacter***

Dan Wang, Hongliang Liu, Shixue Zheng and Gejiao Wang  
*State Key Laboratory of Agricultural Microbiology, College of Basic Sciences, College of Life Science and Technology, Huazhong Agricultural University, Wuhan 430070, China*

### 8. **Adsorption of Cd on mineral-bacteria - humic acid composites**



- K. Kang, W. Chen, P. Cai, X. Rong, K. Dai, Q. Huang  
*State Key Laboratory of Agricultural Microbiology, Huazhong Agricultural University, China*
9. **Immobilization Mechanism of Pb by Oxalic Activated Phosphate Rock**  
G. Jiang, Y. Liu, H. Hu  
*College of Land Resources and Environment, Jiangxi Agricultural University, Nanchang 330045, China; College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*
10. **Citric acid assisted phytoremediation of lead by *Brassica napus* L.**  
 Muhammad Bilal Shakoor, Shafaqat Ali  
*Department of Environmental Sciences, Government College University, Allama Iqbal Road 38000 Faisalabad, Pakistan*
11. **EDTA aided phytoremediation of cadmium by *Brassica napus* L.**  
 Mujahid Farid, Saima Aslam Bharwana, Shafaqat Ali  
*Department of Environmental Sciences Government College University Allama Iqbal Road 38000 Faisalabad, Pakistan*

## Session 2 Biodegradation of organic contaminants

1. **Investigation of diesel biodegradation in decommissioned rock-vaults – Microbiological characterization**  
Lotta Hallbeck, Lena Eriksson and Linda Johansson  
*Microbial Analytics Sweden AB, Mölnlycke Fabriker 9, SE-435 35 Mölnlycke, Sweden*
2. **Investigation of diesel biodegradation in decommissioned water-filled underground rock vaults – Chemical characterization**  
Alexandra Chukharkina, Anders Blom, Jessica Johansson and Lotta Hallbeck  
*Microbial Analytics Sweden AB, Mölnlycke Fabriker 9, 435 35 Mölnlycke, Sweden*
3. **The influence of *Shewanella putrefaciens*, *Pseudomonas stutzeri* and, *Pseudomonas fluorescens* on uranine fluorescence measurements**  
Linda Johansson, Anders Blom, Alexandra Chukharkina, Lotta Hallbeck  
*Department of Microbiology, Microbial Analytics Sweden AB, Mölnlycke, 435 35, Sweden*
4. **Influence of fulvic acid addition on photodegradation of 2,4-D herbicide**  
Irmina wieląg-Piasecka, Maria Jerzykiewicz, Elżbieta Jamroz, Agnieszka Medyńska-Juraszek and Jerzy Weber  
*Dept. Soil Science and Environmental Protection, Wrocław University of Environmental and Life Sciences, Wrocław 51-639, Poland*
5. **Biodegradation of organic waste in the anaerobic digestion – benefits of the co-fermentation process**  
Magdalena Frąc, Krzysztof Ziemiński, Karolina Oszust, Agata Gryta and Nina Bilińska  
*Laboratory of Molecular and Environmental Microbiology, Institute of Agrophysics Polish Academy of Sciences, Doświadczalna 4, 20-290 Lublin, Poland*
6. **The Biolog FF and ECO Plates system for evaluation of the catabolic diversity in fungal and bacterial silage's communities**

Karolina Oszust, Magdalena Frąć, Agata Gryta, Nina Bilińska

*Laboratory of Molecular and Environmental Microbiology, Institute of Agrophysics Polish Academy of Sciences, Doświadczalna 4, 20-290 Lublin, Poland*

7. **Anaerobic degradation of 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane (DDT) in a coastal sediment**

Huan-Yun Yu, Xiao-Long Zhou and Fang-Bai Li

*Guangdong Key Laboratory of Agricultural Environment Pollution Integrated Control, Guangdong Institute of Eco-Environmental and Soil Sciences, Guangzhou, China*

8. **Biodegradation and biosorption of phenanthrene in aqueous solution by *Oxalobacter* sp. Es2-1 and *Phanerochaete chrysosporium***

Haiping Gu, Xiaoyan Luo, Jun Lou, Haizhen Wang, Jianming Xu

*Zhejiang Provincial Key Laboratory of Subtropical Soil and Plant Nutrition, Institute of Soil and Water Resources and Environmental Science, Zhejiang University, Hangzhou 310058, China*

9. **Isolation and screening of bacteria capable of degrading azo dye derived toxic aromatic compounds**

Farzana Kausar, Azeem Khalid and Tariq Mahmood

*Department of Environmental Sciences, PMAS Arid Agriculture University Rawalpindi, 46000 Pakistan*

10. **Exploring the potential microbial degradation of hydrocarbon in an oil-immersed chimney from Guaymas Basin**

Ying He, Xiang Xiao and Fengping Wang

*State Key Laboratory of Microbial Metabolism, School of Life Sciences and Biotechnology, Shanghai, P.R. China; State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University, Shanghai, China*

11. **Isolation and characterization of dibenzofuran-degrading strain, *Bacillus* sp. DF-13**

Lina Qiu, Weiwei Zhang, Aijun Gong, Rulei Yao and Ge Xing

*School of Chemistry and Biology Engineering, University of Science and Technology Beijing, Beijing 100083, China*

12. **Biodegradation of methyl parathion by *Pseudomonas putida* in the presence of clay minerals and iron oxide**

Gang Zhao, Qiaoyun Huang, Xingmin Rong

*State Key Laboratory of Agricultural Microbiology, and College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*

13. **Repeat anaerobic microbial degradation of PCP**

Hui Tong, Manjia Chen, Fangbai Li

*Guangdong Key Laboratory of Agricultural Environment Pollution Integrated Control, Guangdong Institute of Eco-Environmental and Soil Sciences, Guangzhou 510650, China*

14. **Effect of lactate and anthraquinone-2,6-disulfonate on pentachlorophenol degradation and bacterial community composition in paddy soil**

Manjia Chen, Pengcheng Chen, Fangbai Li

*Guangdong Key Laboratory of Agricultural Environment Pollution Integrated Control,  
Guangdong Institute of Eco-Environmental and Soil Sciences, Guangzhou, China*

**15. Characterization of C1-Metabolizing microbial communities in the Dongsha Area of South China Sea**

Mingyang Niu, Ying He, Xiang Xiao, Zhen Xia, and Fengping Wang

*State Key Laboratory of Microbial Metabolism, School of Life Sciences and Biotechnology,  
Shanghai, 200240, China*

**16. Degradation of Erythromycin A in water by Fenton process under ultrasound**

Weiwei Zhang, Lina Qiu, Aijun Gong, Yuhong Pan and Xueru Yang

*School of Chemistry and Biology Engineering, University of Science and Technology Beijing,  
Beijing 100083, China*

**17. Biodegradation of xenobiotic azo dye, Reactive Yellow 84-A, by *Galactomyces geotrichum***

Tatoba R. Waghmode, Mayur B. Kurade, Sanjay P. Govindwarand Pil Joo Kim

*College of Agriculture and Life Sciences, Gyeongsang National University, Jinju 660-701,  
South Korea*

**Session 3 Biogeochemical cycling in marine, fresh water and terrestrial systems**

**1. *In situ* cultivation and characterisation of biofilms in groundwater from deep hard rock aquifers**

Lena Eriksson, Andreas Bengtsson, Johanna Edlund, Lisa Rabe, Linda Johansson and Karsten Pedersen

*Microbial Analytics Sweden AB, Mönlycke Fabriker 9, 435 35 Mönlycke, Sweden*

**2. Microbial diversity depth profile spanning the sulphate-methane transition zone of Olkiluoto, Finland**

Johanna Edlund, Lena Eriksson and Karsten Pedersen

*Microbial Analytics Sweden AB, Mönlycke Fabriker 9, 435 35 Mönlycke, Sweden*

**3. Characterization of early soil microbial communities along an elevational transect from unvegetated to woody site in the Island of Miyake, Japan**

Yong Guo, Reiko Fujimura, Yoshinora Sato, Wataru Suda, Kenshiro Oshima, Masahira Hattori, Takashi Kamijo, and Hiroyuki Ohta

*United Graduate School of Agricultural Science, Tokyo University of Agriculture and  
Technology, Fuchu-shi 183-8538, Japan*

**4. Photoreduction of Hg(II) in the presence of SO<sub>4</sub><sup>2-</sup> in aquatic system: an experimental and theoretical study**

Xijia Li, Dingyong Wang, Kun Yang

*Department of Resources and Environment, Southwest University, Chongqing 400715, China*

**5. CH<sub>4</sub> and N<sub>2</sub>O response to soil redox potential from two paddy soils under flooding conditions**

Peng Qi-an, Muhammad Shaaban, Hu Ronggui, Chen Lin

*College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070,*

China

6. **Does ferrous iron relate to nitrous oxide emission in flooded paddy soil?**  
Milan Wang, Ronggui Hu  
*College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*
7. **Oxidation behavior and kinetics of sulfide by synthesized manganese oxide minerals**  
Guohong Qiu, Qian Li, Shan Li, Xionghan Feng, Wenfeng Tan, Fan Liu  
*College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*
8. **Desorption characteristics of myo-inositol hexakisphosphate and phosphate adsorbed on goethite by different desorption reagents**  
Yupeng Yan, Fan Liu, Wenfeng Tan, Mingming Liu, Xionghan Feng  
*Key Laboratory of Arable Land Conservation, Ministry of Agriculture, College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*
9. **Understanding the microbial abundance & activity of North Pond crustal biosphere, western flank of Mid-Atlantic Ridge**  
Xinxu Zhang, Yueheng Zhou, Vengadesh Perumal, Xiang Xiao, Fengping Wang  
*State Key Laboratory of Microbial Metabolisms and Stake Key Laboratory of Marine Engineering, School of Life Sciences and Biotechnology, Shanghai Jiao Tong University, 200240, China*
10. **Kinetics of iron oxyhydroxides reduction of a tidal marsh surficial sediments in the Min River Estuary in the South-East China**  
Min Luo, Cong-Sheng Zeng, Chuang Tong, Qiang Yu, Yan-Bin Guo, and Shu-Hua Wang  
*School of Geographical Sciences, Fujian Normal University, Fuzhou 350007, China*
11. **Microbial Community Diversity of Water-level-fluctuation Zone of Xiaojiang Watershed in Three Gorges Reservoir**  
Quan Qiu, Wenli Chen, Qiaoyun Huang  
*State Key Laboratory of Agricultural Microbiology, Huazhong Agricultural University Wuhan 430070, China*
12. **Mobilization and re-adsorption of arsenate on ferrihydrite and hematite in the presence of oxalate**  
Xu Han and Bo Yu  
*School of Environmental and Chemical Engineering, Tianjin Polytechnic University, Tianjin, China*
13. **Remediation of oil-contaminated wetland by Hevea Brasillensis**  
Nwaichi, E O, Chukwu, L C and Nwoha, P A  
*Department of Biochemistry, University of Port Harcourt, Port Harcourt, P. M. B. 5323 Port Harcourt, Rivers State, Nigeria*

## Session 4 Mineral-microorganism interactions

1. **Acid bioleaching of aluminium from the alumina by the microscopic filamentous fungus**

*Aspergillus Niger*

Ivana Pifková, Martin Urík, Marek Bujdoš, Marin Senila and Peter Matúš

*Institute of Laboratory Research on Geomaterials, Faculty of Natural Sciences, Comenius University in Bratislava, Mlynská dolina 1, Bratislava 842 15, Slovakia*

2. **Fungal bioweathering of zinc mineral ore**  
Xinjin Liang and Geoffrey M  
*Gadd Geomicrobiology Group, College of Life Sciences, University of Dundee, Dundee DD1 5EH, Scotland, UK*
3. **Organic methanogenesis promoted by uncalcined and calcined natural goethite**  
Jin Wang, Dunfan Yao, Zhengbo Yue, Tianhu Chen  
*School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China*
4. **Research study on microbe-metallogenesis of interlayer oxidized zone type sandstone uranium deposits of China**  
Yuyan Zhang, Xiaoqian Xiu, Gaoyuan Li, Zhangyue Liu, Hongxu Liu  
*Beijing Research Institute of Uranium Geology, CNNC Key Laboratory of Uranium Resource Exploration, Beijing 100029, China*
5. **Microcalorimetric measurement of bacterial metabolism in presence of soil colloids and minerals**  
Huayong Wu, Qiaoyun Huang  
*State Key Laboratory of Agricultural Microbiology, College of Basic Sciences, College of , Huazhong Agricultural University, Wuhan, 430070, China*
6. **Effect of hematite on anaerobic bio-decomposition of sulfate minerals**  
Tianhu Chen, Jin Wang, Zhengbo Yue, Xin Jin, Jie Jin  
*School of Resources and Environmental Engineering, Hefei University of Technology, Hefei, 230009, China*
7. **The fungal endophytes *Cladophialophora* sp. and *Phialocephala helvetica* which promote growth of tomato plant under salinity stressed conditions**  
Erika Usui, Kazuhiko Narisawa  
*United graduate school of agricultural science, Tokyo University of Agriculture and Technology, 3-5-8 Saiwai, Fuchu, Tokyo, Japan*
8. **The evidence about the biogenetic theory of pyrite in the Mengqiguer Area of the Yili Basin**  
Xiaoqian-Xiu, Yuyan-Zhang, Hongxu-Liu, Xiao-Zhang  
*Beijing Research Institute of Uranium Geology, CNNC Key Laboratory of Uranium Resource Exploration, Beijing, China*
9. **Adsorption of the CSF pheromone of *Bacillus subtilis* on montmorillonite, kaolinite and goethite**  
Guohua Dao, Wenli Chen, Qiaoyun Huang  
*State Key Laboratory of Agricultural Microbiology, Huazhong Agricultural University, Wuhan 430070, China*

## Session 5 Biogeochemical interfaces in soil

- 1. Sorption effect of pentachlorophenol and phenanthrene by soil hematite nanoparticles, following changes in solution pH and ionic strength**  
Yan He, Fanfeng Zeng, Xinquan Shen and Jianming Xu  
*College of Environmental and Natural Resource Sciences, Zhejiang Provincial Key Laboratory of Subtropical Soil and Plant Nutrition, Zhejiang University, Hangzhou 310058, China*
- 2. Soil labile carbon and nitrogen pools and microbial metabolic diversity under winter crops in Southeast Australia**  
Xiaoqi Zhou, Chengrong Chen  
*Environmental Futures Centre and Griffith School of Environment, Griffith University, Nathan, 4111, Australia*
- 3. The characterization of nitrifying bacteria community in soil rhizosphere after mineral and organic (dairy sewage sludge) fertilization**  
Agata Gryta, Magdalena Frąć, Nina Bilińska, Karolina Oszust, Anna Siczek, Stefania Jezierska-Tys  
*Laboratory of Molecular and Environmental Microbiology, Institute of Agrophysics Polish Academy of Sciences, Doświadczalna 4, 20-290 Lublin, Poland*
- 4. Nod factors (Lipo-Chitooligosaccharides) effects on symbiotic nitrogen fixation and microbial properties in pea rhizosphere**  
Anna Siczek, Magdalena Frąć, Jerzy Lipiec, Paweł Szarlip, Jerzy Wielbo, Dominika Kidaj  
*Institute of Agrophysics, Polish Academy of Sciences, P.O. Box 201, 20-290 Lublin, Poland*
- 5. Is the decline in detectable Bt protein (Cry1Ac and Cry2A from *Bacillus thuringiensis*) in soil due to microbial breakdown or chemical fixation?**  
Siobhán Staunton, Hung Phuc Truong, Truong Le Van, Roger Frutos and Hervé Quiquampoix  
Eco & Sols, INRA, 34060 Montpellier, France
- 6. Formation of bio-oxidized bixbyite and coordination mechanism of adsorption of Zn<sup>2+</sup>**  
Zhijun Zhang, Hui Yin, Xionghan Feng, Wenfeng Tan, Lirong Zheng, Fan liu  
*Key Laboratory of Arable Land Conservation (Middle and Lower Reaches of Yangtse River), Ministry of Agriculture, College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*
- 7. Plant rhizosphere and temporary waterlogging interactions as major parameter of the mobility, redistribution and availability of trace metals associated to Fe and Mn oxyhydroxides in ferralsols**  
Jacques Berthelin and Isabelle Paskiewicz

*Laboratoire Interdisciplinaire des Environnements Continentaux (LIEC), UMR 7360 CNRS - Université de Lorraine, Faculté des Sciences et Technologies- BP 70239F-54506 VANDOEUVRE LES NANCY Cedex, France*

8. **The combined humus of eroded red soil and its relationship with the water-stable aggregates**  
Wei Liu, Chunyan Wang, Li Huang  
*Key Laboratory of Yangtze River Farmland Conservation, Huazhong Agricultural University, Wuhan, China*
9. **Archaeal community compositions in different types of soils and the associated iron-manganese nodules in China**  
Gui-You Zhang, Ji-Zheng He, Fan Liu, Li-Mei Zhang  
*College of Resource and Environment, Huazhong Agricultural University, Wuhan 430070, China*
10. **Comparative analysis on the bacterial community composition in soils and the associated iron-manganese nodules from four types of Chinese soil**  
Gui-You Zhang, Li-Mei Zhang, Fan Liu, Ji-Zheng He  
*College of Resource and Environment, Huazhong Agricultural University, Wuhan 430070, China; State Key Laboratory of Urban and Regional Ecology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, 100085, China*
11. **Influence of soil humic and fulvic acid on the activity and stability of lysozyme and urease**  
Yan Li, WenFeng Tan, Luuk K. Koopal, MingXia Wang, XiongHan Feng, Fan Liu, and Willem Norde  
*College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*
12. **Effects of terrestrial cyanobacteria application on plant growth in arid soil**  
Satoshi Togashi, Naohiro Takahashi, Kazuyuki Inubushi  
*OISCA, Alashan Desert Research Center, Inner Mongolia 750306, China; Graduate School of Horticulture, Chiba University, Matsudo, Chiba 271-8510, Japan*
13. **New approach to investigate bioavailable forms of nutrients for efficient management of soil fertility**  
Erken Sultanbaev, Beibut Sultanbaev  
*Institute of Colloid Mineralogy, Biogeochemistry group, Kabanbai batyr 69A, Almaty 050100, Kazakhstan*
14. **Comparison of measured  $^{137}\text{Cs}$  and excess  $^{210}\text{Pb}$  levels in the cultivated brown and cinnamon soils of the Yimeng Mountains Area**  
Yunqi Zhang, Yi Long, Xingxiu Yu and Juan An  
*Sichuan Agriculture University, Chengdu, 611830, China*
15. **Plant-based engineering solutions: a cost-effective and resource conservation approach for removing hazardous chemicals from soil**  
Afshan Naseem and Audil Rashid  
*College of Electrical & Mechanical Engineering, National University of Sciences and Technology, Islamabad 44000, Pakistan*

16. **Tillage Induced Shifts in Ionic Composition of Soil. Evaluating Significance for Soil Structure in Arid Climate**

Anvar Mamilov, Erken Sultanbaev, Beibut Sultanbaev, Kazuyuki Inubushi and Oliver Dilly  
*Institute of Colloid Mineralogy, Biogeochemistry group, Kabanbai batyr, Almaty, Kazakhstan*

17. **Pioneer shrub species improve soil chemical and microbial quality by stimulating soil microbial community: importance of soil mycorrhizal fungi**

Baohanta, R. H., Randriambanona H., Raherimandimby M., Andrianandrasana M. D., Ramanankierana H. and Dupponois R  
*Laboratoire de Microbiologie de l'Environnement, Centre National de Recherches sur l'Environnement, BP 1739 Antananarivo-Madagascar; Laboratoire de Biotechnologie Microbiologie, Faculté des Sciences BP 906 / Université d'Antananarivo-Madagascar; Laboratoire des Symbioses Tropicales et Méditerranéennes UMR CIRAD / IRD / SupAgro / UM2 / USC INRA TA A-82 / J Campus International de Baillarguet 34398 Montpellier Cedex 5, France*

## Session 6 Advances in cross-disciplinary biogeochemical methods

1. **Quantification of microbially-induced calcification rates in marine sediment slurries using C and Ca-labelled radiotracers**

Stefan Krause and Tina Treude  
*GEOMAR Helmholtz Centre for Ocean Research, Department of Marine Biogeochemistry, Wischhofstrasse 1-3, 24148 Kiel, Germany*

2. **The effect of biotopic conditions on humic acids (HA) luminescence properties of low sedge mountain fens**

Romualda Bejger, Paweł Nicia, Lilla Mielnik  
*Department of Physics and Agrophysics, West Pomeranian University of Technology in Szczecin, Papieżyńska 15, 71-459 Szczecin, Poland*

3. **Carbon and nitrogen of soil microbial biomass: the problems of assessment**

Mikhail Makarov, Tatiana Malysheva, Mikhail Maslov and Marina Shuleva  
*Soil Science Department, Moscow State University, Moscow 119991, Russia*

4. **Assessment of air pollution with heavy metals roadways areas using the methods of thermal analysis**

Małgorzata Anna Józwiak, Przemysław Rybiński, Marek Józwiak  
*Department of Environment Protection and Modelling, The Jan Kochanowski University, Świętokrzyska 15G, 25-406 Kielce, Poland*

5. **Use moss *Pleurozium schreberii* (Brid.) Mitt. for the assessment of air pollution along motorways**

Małgorzata Anna Józwiak  
*Department of Environment Protection and Modelling, The Jan Kochanowski University, Świętokrzyska 15G, 25-406 Kielce, Poland*

6. **The use of bio-indicators of pollution of railway land in Poland**



Marek Józwiak\*, Małgorzata Anna Józwiak\*, Rafał Kozłowski

*Department of Environment Protection and Modelling, The Jan Kochanowski University, Świętokrzyska 15G, 25-406 Kielce, Poland*

7. **Cell alive system (CAS): a new method of sample freezing for shore-based biological analyses and sample storage**

Nan Xiao, Yuki Morono, Takeshi Terada, Yuhji Yamamoto, Takehiro Hirose and Fumio Inagaki

*Kochi Institute for Core Sample Research, Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Nankoku, Kochi 783-8502, Japan*

8. **Biogeochemical characteristics of the deep mud-volcano subsurface in the Nankai Accretionary Wedge**

Fumio Inagaki, Akira Ijiri, Yusuke Kubo and the Chikyū Expeditions 903 and 906 Scientists  
*Geobio-Engineering and Technology Group, Submarine Resources Research Project, Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Nankoku, Kochi 783-8502, Japan*

## Session 7 Anthropogenic impact on environmental biogeochemistry

1. **Evaluation of nine different treatments for reduction of biological biomass on cultural heritage limestone**

Lisa Rabe, Eva Ernfridsson, Johanna Edlund and Karsten Pedersen

*Microbial Analytics Sweden AB, Mönlycke Fabriker 9, 435 35 Mönlycke, Sweden*

2. **The effect of renaturalization processes on the properties of soils, waters and species composition of plants of grey alder bog forest (*Caltho-Alnetum*) in the Babiogorski National Park**

Paweł Nicia, Anna Koczur, Paweł Zadrożny, Romualda Bejger, Tomasz Lamorski

*University of Agriculture in Krakow, Department of Soil Science and Soil Protection, Poland*

3. **Uranium biogeochemistry in the soil–plant and water–plant systems in an old uranium mine**

Paulo J. C. Favas and João Pratas

*School of Life Sciences and the Environment, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal*

4. **Biogeochemical indication of heavy metals and arsenic contamination in old mining areas**

Paulo J. C. Favas and João Pratas

*School of Life Sciences and the Environment, University of Trás-os-Montes e Alto Douro, Vila Real, Portugal*

5. **Impact of acid and alkaline deposition on the forest ecosystem**

Marek Józwiak, Rafał Kozłowski

*Department of Environment Protection and Modelling, The Jan Kochanowski University, Świętokrzyska 15G, 25-406 Kielce, Poland*

6. **Soil contamination with rarely determined heavy metals in the area of highly polluted railway stations in north-eastern Poland**  
Bogusław Wilkomirski, Małgorzata Suska-Malawska, Barbara Sudnik- Wójcikowska, Tomasz Staszewski  
*Department of Environmental Protection and Modeling, The Jan Kochanowski University in Kielce, Świętokrzyska 15, 25-406 Kielce, Poland*
7. **Aerobic biobutanol production by *Clostridium beijerinckii* SBP2-HB co-cultured with a fungus as the oxygen-consuming agent**  
Miho Kanemoto, Manami Akiyama, Minae Fukunishi, M. Habibur Rahaman, Yoshinori Sato, Youji Nitta, Shigeru Chonan, Yasurou Kurusu, and Hiroyuki Ohta  
*United Graduate School of Agricultural Science, Tokyo University of Agriculture and Technology, Tokyo, 183-8509, Japan*
8. **Comparative study of microbial community in two Australian sclerophyll forest ecosystems: impact of different fire regimes**  
Xian Liu, Chengrong Chen, Weijin Wang  
*Environmental Futures Centre and Griffith School of Environment, Griffith University, Nathan QLD 4111, Australia*
9. **Dissolution characteristics of antimony and arsenic in antimony mining and beneficiation wastes**  
Sisi Li, Xingyun Hu, Mengchang He  
*State Key Laboratory of Water Environment Simulation, School of Environment, Beijing Normal University, Beijing 100875, China*
10. **Mechanism of the influence of pH on antimony release from stibnite**  
Xingyun Hu, Mengchang He  
*State Key Laboratory of Water Environment Simulation, School of Environment, Beijing Normal University, Beijing 100875, China*
11. **Occupational exposure to lead in people working along roadsides of Rawalpindi-Islamabad**  
Mateen Shafiqat, Audil Rashid, Azeem Khalid, Tariq Mahmood and Muhammad Saif ur Rehman  
*Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan*
12. **Health impact assessment for benzene toxic exposure for hospital workers of Rawalpindi, Pakistan**  
Waqar-Un-Nisa, Audil Rashid, Tariq Mahmood and Aansa Rukkyia Saleem  
*Department of Environmental Sciences, PMAS Arid Agriculture University Rawalpindi, Rawalpindi, 46300, Pakistan*
13. **Pentachlorophenol (PCP), 2,4,6-trichlorophenol (TCP) and 3,5-dichlorophenol (DCP) induced changes in cellular structure, antioxidants and lipid peroxidation in the rice (*Oryza sativa L*)**  
Malik Tahir Hayat, He Yan and Xu Jianming

*College of Environmental and Natural Resource Sciences, Zhejiang University, Hangzhou, China*

14. **Effect of composting on methanogenic activity and diversity in cattle manure**  
Sang Yoon Kim, Hyun Young Hwang, Sung Tak Jung and Pil Joo Kim  
*Division of Applied Life Science (BK 21 Program), Gyeongsang National University, Jinju, 660-701, South Korea*
15. **Ecotoxicological assessment of heavy metals in the rhizosphere and restoration of ecological balance using phytoremediation approach**  
Fakhra Rashid, Jamshaid Gul and Audil Rashid  
*EcoHealth Research Lab, Department of Environmental Sciences, PMAS Arid Agriculture University, Rawalpindi-46300, Pakistan*
16. **Phytoremediation of Pb polluted soil by Kenaf assisted with PGPR**  
CHEN Yan-mei, BAI Jun, YANG Yu-xi, WANG Shi-zhong, YANG Xiu-hong, QIU Rong-liang  
*School of Environmental Science and Engineering, Sun Yat-sen University, Guangzhou, 510275, China*
17. **Phosphorus release from phosphate rocks dealt with oxalic acid and citric acid**  
Liu Yonghong, Hu Hongqing, Feng Lei, Jiang Guanjie, Li Qian, Wang Hui, Fu Qingling  
*College of Resources and Environment, Huazhong Agricultural University, Wuhan 430070, China*
18. **Effect of biochar on earthworms activity, soil fertility and plant growth of *pisum sativum* L**  
Malik Tahir Hayat, Uzma Habib, Tariq Mahmood and Ishrat Mubeen  
*Department of Environmental Sciences, PMAS Arid Agriculture University, Rawalpindi Pakistan*
19. **Acrylic fiber wastewater treatment in a nested biofilm airlift suspension reactor**  
Yu Zhongchen, Ma Dong, Wang Song and Zhang Xuejiao  
*School of Civil Engineering & Architecture, Northeast Petroleum University, Daqing 163318, China*
20. **Effects of Bt toxin on the microbial genetic diversity of paddy soils**  
Qingling Fu, Jipeng Liu, Hongqing Hu, Jun Zhu  
*Key Laboratory of Arable Land Conservation (Middle and Lower Reaches of Yangtse River), Ministry of Agriculture, Huazhong Agricultural University, Wuhan 430070, China*
21. **Degradation of acrylic fiber wastewater by heterogeneous catalytic ozonation and strengthening activity micro aeration filter**  
Song Wang, Zhongchen Yu, Xue Jiao Zhang, Xue Bai Yang, Dong Ma  
*School of Earth Science, Northeast Petroleum University, Daqing 163318, China*
22. **Quality assessment of different industrial effluents for irrigation in agriculture**  
M R Islam, G K M M Rahman and M A Saleque  
*Soil Science Division, Bangladesh Rice Research Institute (BRRI), Bangladesh*
23. **Assessment of PAHs Levels Released from an Oil Refinery in Rawalpindi, Pakistan**  
I. Mubeena, A. Rashida, M. T. Hayata, and T. Mahmooda  
*Department of Environmental Sciences, PMAS-Arid Agriculture University Rawalpindi, Pakistan*