



# PROGRAMME

INTERNATIONAL CONFERENCE

„NATURAL ORGANIC MATTER (NOM) GEOCHEMICAL FLOWS AND PROPERTIES:  
FROM THEORY TO PRACTICE”

## HUMIC



*UL Academic Centre House of Nature*

5-8 JUNE 2019

RIGA, LATVIA



## THE INTERNATIONAL CONFERENCE OF IHSS NORDIC-BALTIC CHAPTER IS ORGANISED BY UNIVERSITY OF LATVIA AND INTERNATIONAL HUMIC SUBSTANCES SOCIETY (IHSS).

The aim of the conference is to exchange the results of recent studies and provide a place for creative discussions for those, who are interested in NOM and humic substances. We hope that the topics of the conference will be addressed by researchers not only from Northern Europe, but from other countries as well. We are inviting you to contribute to the success of the conference, enjoy warm and friendly atmosphere of Riga and meet old and new members of the NOM and humus research community.



### International Organizing Committee

**Maris Klavins** (Latvia)  
**Valdis Seglins** (Latvia)  
**Rolf David Vogt** (Norway)  
**Irina Perminova** (Russia)  
**Dag Olav Andersen** (Norway)  
**Bjarne W. Strobel** (Denmark)  
**Ole k. Borggaard** (Denmark)  
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### National Organizing Committee

**Maris Klavins** (University of Latvia)  
**Karina Stankevica** (University of Latvia)  
**Oskars Purmalis** (University of Latvia)  
**Linda Dobkevica** (University of Latvia)  
**Janis Krumins** (University of Latvia)  
**Laimdota Kalnina** (University of Latvia)  
**Judite Dipane** (Latvia Ministry of Environment and Regional Development)  
**Olegs Kukainis** (Latvian Institute of Humic Substances)  
**Janis Sire** (Latvia Centre on Environment)  
**Oskars Bikovens** (Institute of Wood Chemistry)



**Dear friends** of the humic research field!

Despite the very long history of studies of humic substances, key questions related to humification, structure, properties and functions of humic matter in the environment remains open. From the perspective of science, they are one of key elements in carbon biogeochemical cycle and their studies from perspective of science are just as important as biosynthesis and transformations of biomolecules in living organisms. Significant driver of humus research includes their functions in carbon capture and stability of humic matter in conditions of climatic change as well as relations between the whole pool of natural organic matter and its refractory part – humic substances. However, nowadays studies of humic substances have left laboratories of scientists as they are produced in amount of thousands of tons, at first for agricultural applications. It is a major challenge of humic matter research – studies of application efficiency, benefits and possible problems of their use. Anyway: humic substances was, are and will be one of the most exciting and mysterious topics of the studies!

Organizers of the conference “Humic 2019” are really looking forward on exciting exchange of ideas, development of new contacts and cooperation as well as possibilities to meet new and old friends!

Chairman of the Organizing committee  
of the conference “Humic 2019”

*Professor* **Maris Klavins**

## **Topics of the Conference**

**Topic 1** NOM in aquatic and terrestrial systems

**Topic 2** Global change and NOM flows

**Topic 3** Humic substances in Nordic environment

**Topic 4** Interaction of NOM with nutrients and xenobiotic

**Topic 5** Potential of practical application of humic substances: agriculture and technologies

# CONFERENCE SCHEDULE

*All locations are in UL Academic Centre House of Nature,  
unless indicated otherwise*

## WEDNESDAY 5th June

<b>TIME &amp; ROOM</b>	<b>EVENT</b>
<b>17:00</b> <i>Lobby</i>	REGISTRATION
<b>18:00-21:00</b> <i>Room 107</i>	ICE BREAKING PARTY
<b>18:30</b> <i>Room 107</i>	GUIDED TOUR TO LABORATORIES OF UL ENVIRONMENT SCIENCE DEPARTMENT

## THURSDAY 6th June

<b>TIME &amp; ROOM</b>	<b>EVENT</b>
<b>9:00</b> <i>Lobby &amp; Room 106</i>	REGISTRATION & MORNING COFFEE
<b>10:00</b> <i>Room 106</i>	OPENING OF THE CONFERENCE
<b>10:15</b> <i>Room 106</i>	PLENARY SESSION
<b>11:45</b> <i>Room 107</i>	LUNCH
<b>13:00</b> <i>Room 106</i>	SESSION
<b>15:00</b> <i>Room 107</i>	COFFEE BREAK
<b>15:30</b> <i>Room 106</i>	SESSION CONTINUE
<b>19:00</b> <i>Main building of UL Raiņa bulvāris 19</i>	CONFERENCE DINNER

# CONFERENCE SCHEDULE

*All locations are in UL Academic Centre House of Nature,  
unless indicated otherwise*

## FRIDAY 7th June

<b>TIME &amp; ROOM</b>	<b>EVENT</b>
<b>9:00</b> <i>Room 106</i>	PLENARY SESSION
<b>11:00</b> <i>Room 107</i>	COFFEE BREAK
<b>11:30</b> <i>Room 106</i>	SESSION
<b>12:00</b> <i>Room 106</i>	POSTER SESSION
<b>13:15</b> <i>Room 107</i>	LUNCH
<b>14:15</b> <i>Lobby</i>	CONFERENCE EXCURSION: OLD RIGA (VECRĪGA)

## SATURDAY 8th June

<b>TIME &amp; ROOM</b>	<b>EVENT</b>
<b>9:00 - 14:00</b> <i>will be indicated</i>	BOG SHOE HIKE IN CENAS TIRELIS

# PLENARY SESSION

THURSDAY 6th June

10:15 - 11:45 **Chair: Maris KLAVINS, Anna ZAVARZINA** Room 106

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10:15 - 10:45 **Ole K. Borggaard, Peter E. Holm, Bjarne W. Strobel**  
*Potential of dissolved organic matter (DOM) to assist remediation of heavy metal polluted soils*

10:45 - 11:00 **Tuula Tuhkanen, Alexey Ignatev**  
*Integrative characterization of dissolved natural and anthropogenic organic matter using HPSEC-UV-fluorescence*

11:00 - 11:15 **Md Zahidul Islam, Ahmet Tutar, Mustafa Ömer, Karaöz Ayhan, Horuz Ali Gürel, Damla Sahin, Altun Nurgül Karlıoğlu, Kılıç M. Namık, Çağatay Dursun, Acar Rüya Yılmaz Dağdeviren**  
*Isolation, characterization and quantitative analysis of humic acids of turkish peatlands*

11:15 - 11:30 **Oskars Bikovens, Sarmite Janceva, Ingrida Purina, Laima Vevere, Galina Telysheva**  
*Co-composting of seaweed with lignocellulosic substratum: effect of compost composition on compost humic substances*

11:30 - 11:45 **Viia Lepane, Lech Wojciech Szajdak, Helen Otsep, Mareki Szczepansk**  
*Changes in organic matter and nutrients in human affected soil system from Poland*

**SESSION****THURSDAY 6th June****13:00 - 15:00** Chair: **Viia LEPANE, Tuula TUHKANEN** *Room 106***13:00 - 13:30** **Gederts Ievinsh***Humic substances from a point of biological evolution and plant physiology: Unlikely, possibly, potentially***13:30 - 13:45** **Livija Zarina, Olegs Kukainis***Effects of humic substances application on starch formation in potato***13:45 - 14:00** **Junging Gou, Zhiping Yang, Min Yan, Wenli Wu***Research progress on humic acid from weathered coal***14:00 - 14:15** **Olga Yakimenko, Oleg Gladkov, Andrey Stepanov, Olesya Osipova***Targeted transformation of organic matter in the technological process of Lignohumate® synthesis***14:15 - 14:30** **Olegs Kukainis, Simona Larsson***Application of humic substances in precision farming***14:30 - 14:45** **Janis Krumins, Raimonds Krukovskis, Maris Klavins***Humic acids in fen peat: properties and relation to the source material***14:45 - 15:00** **Natalia Kovaleva, Ivan Kovalev***Lignin transformation in soils under the impact of soil plowing and drainage*

# SESSION CONTINUE

**THURSDAY 6th June**

**15:30 - 17:00** Chair: Natalia KOVALEVA, Oskars PURMALIS *Room 106*

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15:30 - 15:45 **Imants Kukuļs, Oļģerts Nikodemus, Raimonds Kasparinskis**  
*Properties of soil organic matter in humus forms in forests formed on dry mineral soils in Latvia*

15:45 - 16:00 **Anna Zavarzina, Mikhail Ermolin, Vladimir Demin, Oksana Belova, Alexander Lisov, Evgeny Pogozhev, Petr Fedotov**  
*Cooperative sorption of phenolic acids on modified kaolinite under batch and dynamic conditions in the presence and absence of laccase*

16:00 - 16:15 **Irina Sokolova, Anastasiia Kudratskaia, Olga Tchaikovskaya, Svetlana Selyanina**  
*The effect of UV irradiation on the absorption and fluorescence spectra of humic acids and their photochemical properties*

16:15- 16:30 **Marina Nadporozhskaya, Kirill Yakkonen, Alexander Ryumin, Denis Mirin**  
*Elemental composition and structural features of humic substances in forest floor of sandy soils with different R2O3 content*

16:30 - 16:45 **Elena Fedoseeva, Daria Khundzhua, Svetlana Patsaeva, Andrey Stepanov, Olga Yakimenko, Vera Terekhova**  
*Spectroscopic indexes can reveal ability of microscopic filamentous fungi to transform humic substances*



**PLENARY SESSION****FRIDAY 7th June****9:00 - 11:00** Chair: **Ole K. BORGGAARD, Olga YAKIMENKO** Room 106**9:00 - 9:30** **Maris Klavins, Oskars Purmalis***Variability of humic acid properties depending on their precursor material: A study of peat profiles and industrial humic substances***9:30 - 9:45** **Evgeniya Karpukhina, Iliya Samsonov, Dmitriy Volkov, Mikhail Proskurnin, Irina Perminova***Determination of lignosulfonates in humate fertilizers by infrared spectroscopy***9:45 - 10:00** **Aleksandra Ukalska-Jaruga, Bożena Smreczak, Urszula Pasternak***Relationships between aging of PAHs and organic matter***10:00 - 10:15** **Michal Kalina, Petr Sedlacek, Jiri Smilek***Colloidal aspects of the interactions between humic acids and surfactants***10:15 - 10:30** **Luis M. Laglera, Camila Sukekava, Javier Downes, Hans Slagter, Loes Gerringa***Voltammetric detection of iron-humic complexes. A powerful tool to quantify the role of humics in the biogeochemical cycle of iron in seawater***10:30 - 10:45** **Ivan Kovalev, Natalia Kovaleva***Lignin phenols in soils of the secondary Nordic forest***10:45 - 11:00** **Jiri Smilek, Michal Kalina, Petr Sedlacek***The function of carboxyl groups on the interactions of humic acids with organic dyes and surface active agents*

## SESSION

FRIDAY 7th June

11:30 - 12:00 Chair: Ivan KOVALEV, Luis M. LAGLERA Room 106

11:30 - 11:45 **Alexandr S. Orlov, Irina A. Kuznetsova, Kirill A. Mironenko, Nikita A. Sobolev**  
*Change of colloid-disperse properties of humus substances under cryogenic impact*

11:45 - 12:00 **Lilia M. Stepchenko, Lyudmila I. Galuzina, Lina M. Diachenko, Evgenia O. Myhaylenko, Valentine A. Utkina, Alisa Y. Lisna**  
*Metabolic role using a feed additive of humic nature "Humilid" on the organism of animals*

12:00 - 12:15 **Lea Piscitelli, Daniel P. Rasse, Anna Daniela Malerba, Teodoro Miano, Donato Mondelli**  
*Olive husks biochar: improvement of soil chemical and biological properties*

## POSTER SESSION

FRIDAY 7th June

12:15 - 13:30 Chair: Maris KLAVINS Room 106

**Mariya M. Zimbovskaya, Georgii S. Mikhaylov, Alexander Yu. Polyakov, Dmitry S. Volkov, Natalia A. Kulikova, Irina V. Perminova, Denis A. Pankratov**  
*Synthesis and foliar application for *Triticum aestivum* L of nano-Fe<sub>3</sub>-δO<sub>4</sub>@HS/DMSO*

**Janis Krumins, Raimonds Krukovskis, Maris Klavins**  
*Biosorption of heavy metals onto fen peat humic acids*

**Agnieszka Baran, Agnieszka Klimkowicz-Pawlak, Monika Mierzwa-Hersztek, Krzysztof Gondek, Marek Tarnawski, Magdalena Szara**  
*The effect of the sediment organic matter on content and potential ecotoxicity of PAHs in bottom sediments from Rożnów reservoirs (Southern Poland)*

**Zhiping Yang, Oiang Zhang, Yigi Hu**  
*Study on Extraction Technology of Humic Acid by Ultrasonic-KOH*

**Nazmiye Cemr Birben, Miray Bekbolet**  
*Fractional distribution of nom-like components in hard waters under non-oxidative and oxidative conditions*

## POSTER SESSION

FRIDAY 7th June

12:15 - 13:15

Chair: Maris KLAUVINS

Room 106

**Maris Klavins, Diana Dudare**

*Sulphur containing derivatives of humic substances and their use for remediation of contaminated environments*

**Maris Klavins, Diana Dudare**

*Interaction between humic substances and xenobiotic substances: does the origin and structure of humic matter be of importance*

**Oskars Purmalis, Olga Petuhova, Maris Klavins, Arturs Viksna**

*Stable isotope ( $\delta C$ ,  $\delta N$ ,  $\delta O$ ) composition characterisation of peat and peat humic matter from raised bog profile*

**Karina Upska, Maris Klavins, Arturs Viksna**

*Multiproxy analytical comparison of industrially produced and reference humic substances*

**Marta Jemeljanova, Ruta Ozola, Maris Klavins**

*Sorption of pharmaceuticals by clay-humic substances composite materials*

**Kristine Irtisheva, Andrejs Shishkin, Janis Baronins, Janis Ozolins, Maris Klavins**

*The production technology of humate substances based on the closed-loop principle from peat*

**Linda Dobkeviča, Baiba Silamiķele, Alise Silova**

*Potential use of fulvic acid isolated from sapropel in skin care*

**Linda Dobkeviča, Maris Klavins**

*Immobilization possibilities of humic substances*

**Karina Stankevica, Zane Vincevica-Gaile, Maris Klavins**

*Functional mechanism and variability content of humic substances in sapropel*

**Monika Mierzwa-Hersztek, Krzysztof Gonddek, Agnieszka Baran, Michał Kopeć**

*Effect of biochar on stabilization of humus compounds and enzymatic activity of sandy soil*

**Monika Mierzwa-Hersztek, Krzysztof Gonddek**

*Effect of coapplication of biochar and mineral salts on the contents of Cu, Cd, Pb and Zn in mobile and organic matter-bound forms in sandy soil*

**Ilgā Kokorīte, Jolanta Jēkabsons, Valērijs Rodinovs, Dāvis Ozoliņš**

*Variability of concentrations of natural organic matter in the Daugava river catchment*



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