



BONARES

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BONARES Conference 2023
Soil as a Sustainable Resource

15–17 May, Berlin, Germany

Conference Programme



BonaRes & Rhizo4Bio Projects – Highlight Presentations*

Head for the asterisk in the detailed programme!

	BODIUM – a systemic approach to model the dynamics of soil functions: how to adequately represent biological processes?	presented by Sara König	Mon, 15 May, 13:30 at MOA 4
	Effects of seed inoculation of wheat and barley in organic farming on plant parameter and the rhizosphere microbiome	presented by Santiago Quiroga	Wed, 17 May, 11:45 at MOA 3
	Optimizing cover crop mixtures for enhanced soil functions resulting in stabilization of crop yields	presented by Robin Kümmerer	Wed, 17 May, 13:00 at MOA 5
	Novel FSPM for the evaluation in silico of 3-dimensional plant development under different genotype-environment-management combinations	presented by Mona Giraud	Mon, 15 May, 16:30 at MOA 4
	Influence of plant beneficial microorganism application on maize in two growing seasons exhibiting contrary abiotic stress conditions	presented by Loreen Sommermann	Wed, 17 May, 11:15 at MOA 3
	Capillary electrophoresis: Cost-effective measurement method for the analysis of soil nutrients	presented by Mohamed Bourouah	Wed, 17 May, 14:00 at MOA 4
	Improvement of P mobilization from smart fertilizers by Bacillus inocula	presented by Stefanie Katharina Niedermaier	Wed, 17 May, 9:45 at MOA 3
	The relative importance of recent and older soil legacies on crop performance: insights into the relationship between plant performance and microbial diversity from a plant – soil feedback experiment	presented by Vicky Temperton	Wed, 17 May, 13:00 at MOA 3
	Apple replant disease: A consequence of a microbial dysbiosis in different soil and plant habitats?	presented by Sarah Benning; Kristin Hauschild & Alicia Balbín-Suárez	Wed, 17 May, 10:30 at MOA 3
	Assembly and adaptation of the root associated bacterial microbiome compared among varieties of <i>Zea mays</i> L. and under drought	presented by Nicolas Tyborski	Wed, 17 May, 13:30 at MOA 3
	Patterns of Enzyme Kinetics Affected by Different Crop Rotation Scenarios in a Loess Soil	presented by Mehdi Rashtbari	Tue, 16 May, 8:45 at MOA 5
	Cover crop mixtures optimize C allocation in the subsoil and promote nutrient uptake during maize cultivation	presented by Yijie Shi	Wed, 17 May, 13:45 at MOA 5
	Temperate agroforestry promotes soil biota and reduces N ₂ O emissions	presented by Lukas Beule	Wed, 17 May, 9:30 at MOA 3
	Mean nutrient uptake depths of cereal crops change with compost incorporation into subsoil – evidence from ⁸⁷ Sr/ ⁸⁶ Sr ratios and potential for Mg stable isotopes	presented by David Uhlig	Tue, 16 May, 8:30 at MOA 5
	UAV-Based Detection of Soil Compaction in former Tramlines in Silage Maize Fields	presented by Frauke Lindenstruth	Wed, 17 May, 11:30 at MOA 4
	Grassland fertilizer management and soil functions – a synthesis of SUSALPS research	presented by Ralf Kiese	Wed, 17 May, 8:30 at MOA 5
	Microplastic effects on plants and soil	presented by Matthias Rillig	Tue, 16 May, 8:30 at MOA 3

Welcome

We cordially welcome you to the BonaRes Conference 2023 “Soil as a Sustainable Resource”.

A sustainable bioeconomy requires integration of soil productivity with a wide range of other soil functions including nutrient cycling, carbon storage, water retention and filtering as well as being the habitat of a myriad of organisms and enabling their activities. The conference will bring together researchers from various disciplines related to soil and plant sciences and agronomy to discuss strategies towards a (multi)functionality of soil ecosystems taking also constraints of climate and global change into account. The conference aims at providing solutions for a sustainable soil management including climate change adaptation, which requires an understanding of soils at a systemic level and to assess their value in a socio-economic framework.

We are looking forward to welcome interested scientists as well as stakeholders in the field of soil management for inspiring discussions.

Cordially,

The BonaRes 2023 organisers

Registration Desk

The registration desk can be found at the entrance area called 'Atrium' of MOA hotel. It is open as follows:

Monday, 15th May, 9:00 – 18:30 | Tuesday, 16th May, 8:00 – 18:00 | Wednesday, 17th May, 8:00 – 15:30

If you require any assistance throughout the conference, please see Susanne Lange and/or Lena Roos at the registration desk. A conference notice board is placed at the registration desk. It is used to display conference information, programme changes, announcements, and messages. Please check the board regularly. Contact phone number during conference: +49(0)176 200 74 216.

Luggage

Please note that only limited storage for luggage is available at MOA hotel. If possible, please store your luggage at the hotel where you are staying.

Name Badges

Please wear your name badge at any time.

Photos

We would like to provide a small photo gallery for all participants after the conference. Hence, photos will be taken throughout the conference. Please approach us at the registration desk in case you do not wish to be photographed.

Smart Phones

Please ensure that smart phones and /or pagers are turned off or switched to silent mode during all presentations and discussions.

Refreshment Breaks

Coffee breaks will be served at the Atrium.

Lunch will be served in the Atrium and MOA-Restaurant (located on the same level as conference rooms).

If there is not enough space or foot shortages occur at your chosen lunch destination, please proceed to the other one. Each area will provide lunch for half the number of participants. The restaurant offers seating areas. Feel free to have a look at the posters while eating in the Atrium area. Both areas are attractive.

If you have informed us of your special dietary requirements, please ask caterers for personalized meals.

WI-FI Access

For WI-FI access, please choose the network "MoaBerlin". Confirm general terms and conditions and log in.

Oral presentations

- Regular oral presentations (except plenary and keynotes lectures) last 15 min including discussion.
- We emphasise the importance of starting and finishing on time – for parallel sessions to stay synchronised. Session chairs were instructed to ensure you do not exceed your allocated time (yellow card – "time to wrap up" and red card – "time is up").
- Presenters are asked to sit in the front for a fast changeover of speakers.
- Please arrive at your session room at least 10 minutes before starting session time and check your presentation runs correctly.
- All presentations must be MS PowerPoint files (2007 or 2010) or PDFs.
- Please bring the file on a memory stick and ensure the presenter's name is part of the file's name. We suggest bringing a backup copy of your presentation file on a second memory stick in case of data corruption or other unexpected IT difficulties. Mac users should test the compatibility of their presentations on Windows beforehand.

Poster Organisation

All posters will be displayed during the complete conference.

There are two poster sessions:

- Monday 15th May 15.00 – 16.30 – topics: 2 / 4 / 5 / 8
- Tuesday 16th May 13.00 – 14.30 – topics: 1 / 3 / 6 / 7

We kindly ask all authors to stand beside their poster during the entire time of your assigned poster session. Poster presentations are not in conflict with any other conference activities. All attendees can actively participate and network.

Posters are organized by numbers (see poster list).

- Presenters should mount their poster before Monday 15th May 12.00 am to their respective board identified in the conference programme.
- Materials (pins) to fix posters to boards are on the poster boards or can be collected at the registration desk.
- Poster format is A0, portrait.
- Posters must be removed immediately at the end of the conference.

Plenary Lecture

Soil as a sustainable resource:
microbiome engineering, pesticides and
soil multifunctionality in agro-ecosystems

Marcel van der Heijden

Plant-Soil Interactions Group, Agroscope, Zurich, Switzerland;
Department of Plant and Microbial Biology, University of Zurich, Switzerland



Keynote Speakers

Topic 1: Impact of agriculture and cropping systems on soil functions

Rachel Creamer | Wageningen University & Research

Quantifying Soil Health throughout Europe



**Topic 2: Carbon and nutrient cycling in soils:
Processes and interactions in a changing world**

Johannes Lehmann | Cornell University

Circular Bionutrient Economy:
biochar-based fertilizer for nutrient recycling



Topic 3: Soil biomes and multifunctionality of soils

Naoise Nunan | Sorbonne University, Paris

Energetic and abiotic constraints on soil microbial
community activities



**Topic 4: Soil degradation and sustainable soil management
in agricultural landscapes**

Peter Fiener | Augsburg University

Landscape scale spatial patterns of soil degradation, soil organic
carbon stocks and corresponding biomass production following
long-term soil redistribution



Topics & Keynote Speakers

Topic 5: Model-based prediction of the dynamics of soil functions
Katharina Meurer | Swedish University of Agricultural Sciences, Uppsala

Modelling the linkages of soil structure dynamics, carbon cycling,
hydrological processes and crop production



**Topic 6: Using soil sensing technologies for soil mapping, modelling and
decision making in agriculture**
Abdul M. Mouazen | Ghent University

The Role of Proximal Soil Sensing Technologies and Data Fusion
Modelling in Precision Management of Farming Input Resources



**Topic 7: Soils as a key to climate change mitigation: private and public govern-
ance instruments to unlock the potential**
Ana Frelih Larsen | Ecologic Institute, Berlin

Soils and climate change mitigation: priorities and the required
policy mix in the EU



Topic 8: Data challenges and solutions
Fenny van Egmond | ISRIC World Soil Information, Wageningen
Data challenges and solutions: a closer look at soil data
challenges and infrastructures



On May 16th, 2023, 15:00 – 16:00 h

Soil based solutions – managing conflicting demands for soil services

A sustainable bioeconomy requires integration of soil productivity with a wide range of other soil functions including nutrient cycling, carbon storage, water retention and filtering as well as being the habitat of a myriad of organisms and enabling their activities. How can trade-offs between such services be managed? What are options for prioritization in different geographic or socio-economic settings? How do policy strategies govern the multitude of soil functions?

In this roundtable discussion, an international expert group from policy, practice, business, and research will discuss their perceptions and experiences on managing conflicting demands for soil services.

Chair: Katharina Helming (Leibniz Centre for Agricultural Landscape Research)

Benjamin Subei, Associate Director Düsseldorf, Boston Consulting Group

Ivo Degn, CEO and Co-founder, Climate farmers

Harald Ginzky, Environment Agency Germany (UBA)

Gabriel Moinet, soil biology group, Wageningen University & Research

On May 17th, 2023, 15:30 – 17:30 h

BonaRes Data Management Workshop – “Data Publication and Reuse”

The BonaRes and Rhizo4Bio communities are invited to attend this workshop. Anyone who has previously published or plans to publish research data in the BonaRes Repository is cordially welcome to attend. We will concentrate on the metadata description of research data, the numerous data types and formats, as well as the importance of related identifiers in boosting author visibility, data findability, and reusability.

The workshop will result in the development of a userfriendly procedure for data provision to the repository and easy navigation across the repository to improve data reuse.

Programme at a Glance

MONDAY 15 May 2023			
Registration – Atrium			09:00
MOA 5	MOA 4	MOA 3	
Open Ceremony, Greetings			10:45
Plenary Lecture by Marcel van der Heijden Agroscope			11:00
Lunch Break			12:00
2.1 Carbon and nutrient cycling in soils: Processes and interactions in a changing world	5.1 Model-based prediction of the dynamics of soil functions	4.1 Soil degradation and sustainable soil management in agricultural landscapes	13:00
Coffee Break			14:30
Poster Session – Atrium Topic 2: Carbon and nutrient cycling in soils: Processes and interactions in a changing world Topic 4: Soil degradation and sustainable soil management in agricultural landscapes Topic 5: Model-based prediction of the dynamics of soil functions Topic 8: Data challenges and solutions			15:00
2.2 Carbon and nutrient cycling in soils: Processes and interactions in a changing world	5.2 Model-based prediction of the dynamics of soil functions	4.2 Soil degradation and sustainable soil management in agricultural landscapes	16:30
TUESDAY 16 May 2023			
Registration – Atrium			08:00
2.3 Carbon and nutrient cycling in soils: Processes and interactions in a changing world	8.1 Data challenges and solutions	4.3 Soil degradation and sustainable soil management in agricultural landscapes	08:30
Coffee Break – Atrium			10:00
2.4 Carbon and nutrient cycling in soils: Processes and interactions in a changing world	1.1 Impact of agriculture and cropping systems on soil functions	4.4 Soil degradation and sustainable soil management in agricultural landscapes	10:30
Lunch Break			12:00
Poster Session – Atrium Topic 1: Impact of agriculture and cropping systems on soil functions Topic 3: Soil biomes and multifunctionality of soils Topic 6: Using soil sensing technologies for soil mapping, modelling and decision making in agriculture Topic 7: Soils as a key to climate change mitigation: private and public governance instruments...			13:00
Coffee Break Exhibition			14:30
Panel discussion Soil based solutions – managing conflicting demands for soil services			15:00 – 16:00
Conference Dinner at MOA restaurant			19:00
WEDNESDAY 17 May 2023			
Registration – Atrium			08:00
1.2 Impact of agriculture and cropping systems on soil functions	7 Soils as a key to climate change mitigation: private and public governance...	3.1 Soil biomes and multifunctionality of soils	08:30
Coffee Break			10:00
1.3 Impact of agriculture and cropping systems on soil functions	6.1 Using soil sensing technol. for soil mapping, modelling & decision making	3.2: Soil biomes and multifunctionality of soils	10:30
Lunch Break			12:00
1.4 Impact of agriculture and cropping systems on soil functions	6.2 Using soil sensing technol. for soil mapping, modelling & decision making	3.3 Soil biomes and multifunctionality of soils	13:00
Coffee Break			14:30
Early Career Awards & Farewell – Atrium			14:45
	BonaRes Data Management Workshop – “Data Publication and Reuse”		15:30–17:00

Programme on Monday, 15th May 2023

	MOA 5	MOA 4	MOA 3
9:00	Registration Atrium		
10:45	Open Ceremony, Greetings: Dr. Katja Zboralski BMBF Prof. Hans-Jörg Vogel BonaRes-Zentrum		
11:00	Plenary Lecture: Marcel van der Heijden "Soil as a sustainable resource: microbiome engineering, pesticides and soil multifunctionality in agro-ecosystems"		
12:00	Lunch break Lunch will be served in the Atrium and at the MOA-Restaurant (MOA eat)		
	Topic 2.1: Carbon and nutrient cycling in soils: Processes and interactions in a changing world – Effect of climate change on C & N dynamics <i>Chair: Nicolas Brüggemann</i>	Topic 5.1: Model-based prediction of the dynamics of soil functions – Model approaches and tools <i>Chair: Andrea Schnepf</i>	Topic 4.1: Soil degradation and sustainable soil management in agricultural landscapes – Soil degradation by soil erosion <i>Chair: Michael Kuhwald</i>
13:00	<u>Rüdiger Reichel</u> ; Kerui Zhao; Winfried Bungert; Nicolas Brüggemann Post-harvest N management by straw addition in an oilseed rape–winter wheat crop sequence under increasing climatic stress	<u>Keynote: Katharina Meurer</u> Modelling the linkages of soil structure dynamics, carbon cycling, hydrological processes and crop production	<u>Kai Germer</u> ; Maike Weise; Marco Lorenz Soil compaction by agricultural traffic leads to changes in soil hydraulic properties, measured on a farm with silty soils in northern Germany
13:15	<u>Noelia Garcia-Franco</u> ; Martin Wiesmeier; Bernd J. Berauer; Max Schuchardt; Anke Jentsch; Diana Rocío Andrade-Linares; Ralf Kiese; Michael Dannenmann; Ingrid Kögel-Knabner Climate change induces losses of soil structure and associated organic carbon in Alpine grassland soils		<u>Richard Schröder</u> Dependence of air conductivity on soil texture, type, structure, and cohesion: Results from a database obtained over three decades
13:30	<u>Franziska Steiner</u> ; Andreas J. Wild; Nicolas Tyborski; Shu-Yin Tung; Tina Köhler; Franz Buegger; Andrea Carminati; Barbara Eder; Jennifer Groth; Benjamin D. Hesse; Johanna Pausch; Tillmann Lüders; Wouter Vahl; Sebastian Wolfrum; Carsten W. Mueller; Alix Vidal The drought response of soil structure and soil carbon allocation in the rhizosphere of <i>Zea mays</i> L. varieties are controlled by the intra-specific variability of functional traits	* <u>Sara König</u> ; Ulrich Weller; Bibiana Betancur-Corredor; Birgit Lang; David Russell; Andrey Zaitsev; Thomas Reitz; Martin Wiesmeier; Ute Wollschläger; Hans-Jörg Vogel BODIUM – a systemic approach to model the dynamics of soil functions: how to adequately represent biological processes?	<u>Katja Augustin</u> ; Marco Lorenz; Rainer Duttmann; Michael Kuhwald Comparison of the beet harvester's traffic intensities with and without crab steering
13:45	<u>Tobias Stürzebecher</u> ; Azhar Zhartybayeva; Iris Zimmermann; Yijie Shi; Henrik Füllgrabe; Nipun Withanage; Juanjuan Ai; Katja Holzhauser; Debjyoti Ghosh; Jens Dyckmans; Jochen A. Müller; Nico Jehmlich; Callum C. Banfield; Henning Kage; Sandra Spielvogel; Michaela A. Dippold Insights from field ¹⁵ N leaf-labeling in cover crop-derived N nutrition of maize	<u>Jan Lukas Wenzel</u> ; Christopher Conrad; Thomas Piernicke; Julia Pöhlitz Modeling soil moisture dynamics on variably irrigated starch potato fields	<u>Katharina Bäumler</u> ; Marco Lorenz; Bernhard Osterburg; Mareike Söder Determining the influence of machine effectiveness and soil parameters on soil compaction
14:00	<u>Steffen Rothardt</u> ; Henning Kage Mitigating N losses in winter crops during percolation period and after spring droughts	<u>Mohammad Ibrahim Khalil</u> ; A.D. Jurcut; Bruce A. Osborne Towards a Systems-based Digital Platform for Agricultural Land Use Planning, Management Decision and Inventory Reporting	<u>Marie Eden</u> ; Joachim Brunotte; Marco Lorenz Evolution of soil bulk density on loess-derived silt loam on a North German farm

Programme on Monday, 15th May 2023

	MOA 5	MOA 4	MOA 3
14:15	<i>Sergey Blagodatsky; Casper Wijckmans; Rüdiger Reichel; Nicolas Brüggemann; Michael Bonkowski</i> The effect of straw incorporation and drought on the microbial activity and biomass in soil	<i>Holger Pagel; Stefano Manzoni; Marie Uksa; Ellen Kandeler; Christian Poll; Hyun-Seob Song; Thilo Streck</i> Conceptualization and conditioning of bioenergetic soil organic matter models	<i>Monika Joschko; Tamas Harrach; Dietmer Barkusky; Guido Fritsch; Uwe Franko; Adriano Sofo; Adrian Krolczyk; Ralf Wieland; Katrin Kuka; Isabell Szallies</i> / Soil structure as integrative indicator of soil health: potential and perspectives for a practical tool
14:30	Coffee break		
15:00	Poster session: topics 2, 4, 5, 8		
	Topic 2.2: Carbon and nutrient cycling in soils: Processes and interactions in a changing world – Soil P dynamics <i>Chair: Michaela Dippold</i>	Topic 5.2: Model-based prediction of the dynamics of soil functions – Model applications and predictions <i>Chair: Sara König</i>	Topic 4.2: Soil degradation and sustainable soil management in agricultural landscapes – Soil degradation by soil erosion <i>Chair: Michael Kuhwald</i>
16:30	<i>Stefanie Schulz; Christel Baum; Peter Leinweber; Nora Köller; Benoit Renaud Martins; Julia Katharina Kurth; Rüdiger Reichel; Nicolas Brüggemann; Ulf Karsten; Karin Glaser; Friederike Lang; Michael Schloter</i> Microbes involved in soil nitrogen and phosphorus turnover are closely intertwined: Lessons learned from forest and agricultural studies	* <i>Mona Giraud; Daniel Leitner; Samuel Le Gall; Moritz Harings; Guillaume Lobet; Andrea Schnepf</i> Novel FSPM for the evaluation in silico of 3-dimensional plant development under different genotype-environment-management combinations	Keynote: Peter Fiener Landscape scale spatial patterns of soil degradation, soil organic carbon stocks and corresponding biomass production following long-term soil redistribution
16:45	<i>Kerstin Panten; Peter Leinweber</i> Agronomic evaluation of secondary phosphorus fertilisers from sewage sludge ash, struvite, and bone char in two on-farm experiments	<i>Carolin Boos; Thuy Huu Nguyen; Frank Ewert; Gaochao Cai; Shehan Morandage; David Kraus; Edwin Haas; Ralf Kiese</i> Implementation and validation of a dynamic root model in the ecosystem model LandscapeDNDC	
17:00	<i>Josephine Kooij; Dorette Müller-Stöver</i> Effect of sludge precipitation method and subsequent thermal treatments on P fertilizer value and propensity to leach P	<i>Gabriel Salako; David Russell; Andrey Zaitsev</i> Modelling and extracting reference values of earthworm ecological group in agricultural soil: implications on soil animal bioturbation	<i>Marvin Melzer; Nishita Thakur; Florian Ebertseder; Sonoko Bellingrath-Kimura</i> Identification of small-scale erosion hotspots polluting aquatic ecosystems
17:15	<i>Sabry Shaheen; Christoph Weihrauch; Xing Yang; Kerstin Panten; Peter Leinweber; Jörg Rinklebe</i> Phosphorus mobilization in arable soils treated with conventional and “smart” P-fertilizers under different redox conditions	<i>Cenk Dönmez; Carsten Hoffmann; Meike Grosse; Carsten Paul; Wilfried Hierold; Katharina Helming</i> Assessing climate change impacts on Long-Term Field Experiments in Germany through geospatial technologies	<i>Philipp Saggau; Michael Kuhwald; Rainer Duttmann</i> Analysis of contour farming and reduced tillage to reduce soil erosion in compacted tramlines: Results of a model-based case study in an agricultural catchment
17:30	<i>Alberto Andrino; Elisa Díaz; Simone Killian Salas; Diana Boy; Georg Guggenberger; Hermann F. Jungkunst; Marcus Horn; Jens Boy</i> Phosphorus source matters: understanding the legacy of arbuscular mycorrhizae in soil, following mobilization of phosphorus sources with differing accessibility	<i>Jakob Bogenreuther; Thomas Koellner</i> Variability and stagnation of wheat and maize yields: Spatial differences and possible predictors	<i>Till Seehusen</i> Effect of different types of soil tillage on straw incorporation, straw decomposition and yields of spring barley in Norway
17:45	<i>Håkan Wallander; Juan Pablo Almeida; Dries Roobroeck; Geoffrey Kimutai Maritim; Thomas Kätterer</i> Limited P supply and AMF colonization enhance uptake of iron bound phosphorus in arable soils	<i>Konstantin Aiteew; Rene Dechow</i> Mitigation of greenhouse gas emissions from German croplands in a changing climate	<i>Nina Siebers; Jens Kruse; Yunsheng Jia; Bernd Lennartz; Stefan Koch</i> Loss of subsurface particulate and truly dissolved phosphorus during various flow conditions along a tile drain–ditch–brook continuum

No.	Authors Title of Posters
Topic 2: Carbon and nutrient cycling in soils: Processes and interactions in a changing world	
1	<i>Festus Tetteh Attor; Christine Wachendorf</i> Factors and magnitude of soil organic matter increases in temperate arable alley cropping systems
2	<i>Michael Sommer; Marisa Gerriets; Dymphie Burger; Sara Bauke; Wulf Amelung</i> Long-term C sequestration after artificial soil erosion and deep tillage – evidence from historical field experiments
3	<i>Muhammad Owais Khan; Anna Klamerus Iwan; Dawid Kupka; Ewa Słowik-Opoka</i> Initial impact of different doses of coffee and salt on soil chemical and hydrological properties in an urban ecosystem
4	<i>Panchami Jaya; S. Sandeep; A. S. Gayathri; C. P. Tomjo</i> Phytolith dynamics in contrasting forested systems of Southernwestern Ghats
5	<i>Nora Köller; Julien Guigue; Ralf Kiese; Ingrid Kögel-Knabner; Michael Schloter; Stefanie Schulz</i> Evaluation of compost quality, soil texture and microbial activity as driver for nutrient turnover and greenhouse gas emissions in meliorated subsoils
6	<i>José Ángel Callejas Rodelas; Justus van Ramshorst; Alexander Knohl; Christian Markwitz</i> Intercomparison of lower-cost and conventional eddy covariance systems for CO ₂ and H ₂ O flux measurements above cropland monoculture and agroforestry
7	<i>Jonas Steinfeld; Rachel Creamer; Felix Bianchi; Maria Victoria Ballester; Rodnei Rizzo; Jorge Luiz Locatelli; Carlos Eduardo Cerri</i> Linking nutrient cycling, soil organic C stabilization and the complexity of agroforestry systems in Brazil
8	<i>Martina I. Gocke; Axel Don; Arne Heidkamp; Florian Schneider; Sara Bauke; Wulf Amelung</i> Micronutrient supply in German arable top- and subsoils
9	<i>María Martín Roldán; Roman Hartwig; Monika Wimmer; Evgenia Blagodatskaya</i> Enzymes kinetics and microbial growth in the rhizosphere gradient of maize are sensitive to a short-term drought
10	<i>Anika Zacher; Steffen Heinrich; Peter Leinweber</i> Biochar from sewage sludge: soil C storage combined with P recycling
11	<i>Negar Ghaderi; Zeeshan Ibrahim; Andrey Guber; Sajedah Khosrozadeh; Vusal Guliyev; Evgenia Blagodatskaya</i> Functional traits of hydrolytic enzymes in the rhizosphere gradient of Zea mays L.: improved resolution by reduced sample size
12	<i>Nikolaos Kaloterakis; Mehdi Rashtbari; Bahar S. Razavi; Andrea Braun-Kiewnick; Adriana Giongo; Doreen Babin; Kornelia Smalla; Charlotte Kummer; Sirgit Kummer; Samuel Le Gall; Youri Rothfuss; Rüdiger Reichel; Nicolas Brüggemann</i> Triple isotopic labeling to investigate rhizosphere processes and yield decline in winter wheat rotations
13	<i>Yaou Wu; Dirk Freese</i> P saturation of soils characterized by organic and inorganic pools
14	<i>Kerui Zhao; Rüdiger Reichel; Holger Wissel; Nicolas Brüggemann</i> The effect of different high carbon soil amendments on N retention capacity under winter conditions in silty clay soil with low organic carbon content: An incubation study
15	<i>Lizzie Foley; Raphael Tiziani; Luigimaria Borruso; Stefano Cesco; Tanja Mimmo</i> Soil contribution to CO ₂ storage in South Tyrolean apple orchards: possible improvement measures and influence of cover crops
16	<i>Guodong Shao; Juanjuan Ai; Michaela A. Dippold; Lichao Fan; Klaus Dittert; Haitao Wang</i> White clover induces lower overwinter non-CO ₂ greenhouse gas emissions than fertilized perennial ryegrass by increasing CH ₄ uptake on grassland
17	<i>Daniel Emiru Olana; Mesfin T. Gebremikael</i> Exploring and evaluating alternative sources of organic materials for improving soil fertility and health in Ethiopia
18	<i>Julien Guigue; Sara L. Bauke; Sabine J. Seidel; Miriam Athmann; Oliver Schmittmann; Ingrid Kögel-Knabner; Wulf Amelung</i> Agricultural subsoil management: Deep placement of organic fertilizers and vertical changes in soil organic matter
19	<i>Iryna Loginova; Nataliya Bilyera; Callum Banfield; Denis Kutoley; Yakov Kuzyakov; Michaela A. Dippold</i> An effect of suspended corncob biochar solution on phosphorus availability and soil microbial activity
20	<i>George Mercer</i> Transforming Biosolids into Stable Soil Carbon

21	<i>Juanjuan Ai; Kazem Zamanian; Callum Banfield; Guodong Shao; Sandra Spielvogel; Michaela Dippold</i> What controls the availability of organic and inorganic N sources in top- and subsoils?
22	<i>Tomasz Niedziński; Wojciech Stępień</i> Content of available microelements in three soil horizons in long-term experiments in Skierniewice
Topic 4: Soil degradation and sustainable soil management in agricultural landscapes	
23	<i>Katja Augustin; Santiago Focke-Martinez; Rainer Duttmann; Joachim Hertzberg; Michael Kuhwald</i> The Relationship of Spatial Traffic Intensity during Wheat Harvesting Depending on the Field Geometry and Machine Size
24	<i>Simona Castaldi; Eleonora Grilli; Hafiz Khuzama Ishaq; Iseult Malrieu; Micol Mastrocicco; Rossana Marzaioli; Elio Coppola; Fernando Pulido; Filipe Silva; Joao Madeira; Flora Angela Rutigliano</i> Sustainable land management in degraded pastures of Southern Portugal
25	<i>Nkosinomusa Dube; Leshalagae Mojapelo</i> Impact of topsoil mining for unfired mudbricks on soil quality in eastern KwaZulu-Natal, South Africa
26	<i>Michael Kuhwald; Katja Kuhwald; Rainer Duttmann</i> Variation in soil compaction risk during a 5-year crop rotation: a spatio-temporal high-resolution assessment at region scale
27	<i>Katja Holzhauser; Iris Zimmermann; Michaela Dippold; Sandra Spielvogel; Henning Kage</i> Water conservation through cover crops – which mixtures are suitable?
28	<i>Amit Kumar Srivastava; Thomas Gaiser; Miriam Athmann; Martina Gocke; Sara Bauke; Axel Don; Florian Schneider; Ali Sakhaee; Wulf Amelung; Sabine Seidel</i> Effect of Subsoil amelioration techniques – A case study at regional scale in Germany
29	<i>Hongyu Chen; Matthias Rillig</i> Interactive effects of microplastics with other environmental drivers in a plant-soil system
30	<i>Maike Weise; Marco Lorenz; Joachim Brunotte</i> Influence of agricultural machinery on soil deformation during slurry application in spring
31	<i>J. Djajadi; Lynette K Abbott; Hira Shaukat; I. P. Sapinas; Christoph Hinz</i> Development of soil aggregates in distinct fractions of sandy soil amended with clay and organic matter
32	<i>Kathlin Schweitzer; Michael Baumecker; David-Paul Klein; Vera Porwollik; Oliver Schmittmann</i> Effect of subsoil amelioration on physical subsoil properties and root growth in a sandy arable soil
33	<i>Kathlin Schweitzer; Michel Baumecker; David-Paul Klein; Vera Porwollik; Oliver Schmittmann</i> Effect of subsoil amelioration on crop yield of winter rye and maize for silage
34	<i>Otavio dos Anjos Leal; Alexandra Brautlacht; Julia Schild; Nicolas Brüggemann; Arnd J. Kuhn; Holger Klose; Nina Siebers; Silvia D. Schrey</i> New biochars for improvement of agricultural soils: first insights into Miscanthus-based biochar effects on soil greenhouse gas emissions and polysaccharide-mediated aggregate formation
35	<i>Daniel Höfle; Sebastian Sperber; Markus Antoniotti; Gabriele Berg; Ahmed Abdelfattah</i> Artificial humic acid to save historical gardens
Topic 5: Model-based prediction of the dynamics of soil functions	
36	<i>Sibghat Ullah; Andrea Schnepf; Henning Kage; Jan Vanderborght; Daniel Leitner</i> Modelling early root senescence in wheat crop when growing in mono-cropping pattern and comparison of its root water uptake performance with standard root system
37	<i>Tobias Selzner; Sonja Habbinga; Andrea Schnepf</i> Embedding of root-soil-interaction simulations into virtual environments to create engaging outreach materials
38	<i>Ahmet Sircan; Thilo Streck; Andrea Schnepf; Holger Pagel</i> Traitbased modeling of microbial distribution and carbon turnover in the rhizosphere
39	<i>Gihan Mohammed; Nina Siebers; Horst Hardelauf; Ines Merbach; Bettina Eichler- Löbermann; Sabine Seidel; Michael Herbst</i> Implementation of a phosphorus module in the AgroC model to predict the dynamics of phosphorus fertilization in crop-soil systems
40	<i>Shu-Yin Tung; Carolin Boos; Tina Köhler; Andreas J. Wild; Franziska Steiner; Nicolas Tyborski; Johanna Pausch; Tillmann Lüders; Carsten Müller; Alix Vidal; Andreas Carminati; Ralf Kiese; Barbara Eder; Sebastian Wolfrum</i> The potential of minirhizotron images to gather dynamic root data for plant-soil system modelling
41	<i>Ulrich Weller; Sara König; Bibiana Betancur-Corredor; Andrey Zaitsev; Ute Wollschläger; Hans-Jörg Vogel</i> Soil structure dynamics matters: Modelling the impact of land management on soil functions using BODIUM

42	<i>Lucas Kanagarajah; Thomas Reitz; Martin Schädler; Franziska Taubert; Hans-Jörg Vogel; Ulrich Weller; Sara König</i> Modelling the effects of global change on soil functions in different land-use types
43	<i>Carolin Boos; Sophie Reineremann; Andrea Kaim; Raul Wood; Ralf Ludwig; David Kraus; Ralf Kiese</i> Climate stimulation and drought stress in pre-alpine grasslands – a regional yield assessment
44	<i>Judith Sophia Rüschoff; Ulrich Weller; Sara König; Leonard Franke; Ute Wollschläger; Hans-Jörg Vogel</i> BODIUM4Farmers: A potential tool to assess the impact of management measures on soil functions
45	<i>Hira Shaikat; Marit Kragt; Sasha N Jenkins; Lynette K Abbott</i> Is the soil biology Blackbox imposing fundamental limits on ecological modelling?
46	<i>Julius Diel; René Dechow</i> Comparing SOM Models with initial steady state – What the Mean Transit Time can tell us
Topic 8: Data challenges and solutions – From data infrastructures to solution oriented applications	
47	<i>Karin Schmelmer; Einar Eberhardt</i> Regionalization of soil data – comparison of two methods
48	<i>Mareille Wittnebel; Stefan Frank; Bärbel Tiemeyer</i> Updated map of organic soils in Germany
49	<i>Maureen Fonji Atemkeng; Nikolai Svoboda; Abraham Tula; Xenia Specka; Carsten Hoffmann</i> The BonaRes Repository: Research data publications in numbers
50	<i>Carsten Hoffmann; Sebastian Rick; Stephan Lesch; Nikolai Svoboda; Viet Hoang Nguyen; Maureen Fonji Atemkeng; Xenia Specka</i> DQ KIT – A BonaRes tool to increase the trustworthiness of high-quality data sets
51	<i>Jannes Uhlott; Florian Beyer; Heike Gerighausen; Markus Möller</i> Effects of different land use data on biodiversity metrics in agricultural landscapes: towards (geo)data fitness for use
52	<i>David J. Russell; Stephan Lesch; Sebastian Rick; Ricarda Lehmitz; Karin Hohberg</i> Edaphobase –Data Warehouse for Soil-Biodiversity
53	<i>Abraham Tula; Xenia Specka; Nikolai Svoboda; Carsten Hoffmann; Maureen Atemkeng</i> Geospatial data visualization on various data types in BonaRes Repository

Programme on Tuesday, 16th May 2023

	MOA 5	MOA 4	MOA 3
8:00	Registration		
	Topic 2.3: Carbon and nutrient cycling in soils: Processes and interactions in a changing world – Various processes involved in soil nutrient dynamics <i>Chair: Michaela Dippold</i>	Topic 8.1: Data challenges and solutions – From data infrastructures to solution oriented applications <i>Chair: David Russell</i>	Topic 4.3: Soil degradation and sustainable soil management in agricultural landscapes – Threats and opportunities for soil health <i>Chair: Eva Lehndorff</i>
8:30	* <u>David Uhlig</u> ; Anne E. Berns; Bei Wu; Wulf Amelung Mean nutrient uptake depths of cereal crops change with compost incorporation into subsoil – evidence from ⁸⁷ Sr / ⁸⁶ Sr ratios and potential for Mg stable isotopes	<u>Keynote: Fenny van Egmond</u> Data challenges and solutions: a closer look at soil data challenges and infrastructures	* <u>Matthias Rillig</u> ; Hongyu Chen; Michael Schloter; Nicolas Brüggemann Microplastic effects on plants and soil
8:45	* <u>Mehdi Rashtbari</u> ; Andrea Braun-Kiewnick; Markus Schemmel; Zheng Zhou; Lingyue Han; Katharina Pronkow; Doreen Babin; Kornelia Smalla; Daguang Cai; Henning Kage; Bahar S. Razavi Patterns of Enzyme Kinetics Affected by Different Crop Rotation Scenarios in a Loess Soil		<u>Katharina Neubert</u> ; Anas Bouhila; Sandisiwe Moyo; Nicolas Brüggemann Highly Hydrophobic Microplastics Affect Winter Wheat Root Growth and Plant Available Soil Nutrient Content
9:00	<u>Andreas J. Wild</u> ; Franziska Steiner; Marvin Kiene; Nicolas Tyborski; Shu-Yin Tung; Tina Köhler; Andrea Carminati; Barbara Eder; Jennifer Groth; Wouter Vahl; Sebastian Wolfrum; Tillmann Lüders; Carsten W. Müller; Alix Vidal; Johanna Pausch The plant-rhizosphere system of maize under drought: Comparison of old and modern varieties by integrating root economics, and drought-adaptive response indices	<u>Carsten Hoffmann</u> ; Maureen F. Atemkeng; Nikolai Svoboda; Xenia Specka The BonaRes Repository: Data tools and services to increase the impact of soil and agricultural scientists' work	<u>Kristin Hauschild</u> ; Benye Liu; Elke Bloem; Kornelia Smalla Beneficial microbes and catch crop amendments: Sustainable soil management options for Apple Replant Disease
9:15	<u>Filip Polák</u> ; Ondřej Drábek; Václav Tejnecký; Martin Urík Influence of <i>Aspergillus niger</i> on nutrient availability in soil environment	<u>Florian Beyer</u> ; Patric Brandt; Heike Gerighausen; <u>Markus Möller</u> Geodata analysis with decentralized cloud-integrated infrastructures: Lessons learned and solutions for public authorities	<u>Alicia Balbin Suarez</u> ; Carolin Popp; Gisela Grunewaldt-Stöcker; Sabine Kind The good and the bad microbes of Apple Replant Disease
9:30	<u>Saven Thai</u> Temporal changes in soil chemical compositions in acidified forest soils in Czech Republic	<u>Antonio Benítez-Hidalgo</u> ; José García-Nieto; José F. Aldana-Martín; Cristian Cardas; José F. Aldana-Montes; <u>Ismael Navas-Delgado</u> GreenSenti-IA: A Workflow Approach for Biodiversity Analysis in Urban Green Area Monitoring	<u>Victoria Cerecetto</u> ; Kornelia Smalla; Carolina Leoni; Doreen Babin Grain crop-pasture rotations select beneficial soil and rhizosphere microbiota, preserve soil health and improve grain production
9:45	<u>Tanvir Shahzad</u> Interactive effect of biochar rates and elevated temperature on organic matter cycling, nutrient availability and extracellular enzyme activity in a silt loam Aridisol	<u>Drago Indjic</u> ; Mike Bennett; Serge Billieux; Andrey Zaytsev Toward Practical Ontologies for Soil Biodiversity Finance	<u>Thomas Schmitt</u> ; Carolin Boos; Sophie Reineremann; Thomas Koellner; Andrea Kaim; Sarah Asam; Ralf Kiese Does supply of fodder match demands of Alpine and pre-Alpine farms? An interdisciplinary approach
10:00	Coffee break		

Programme on Tuesday, 16th May 2023

	MOA 5	MOA 4	MOA 3
	Topic 2.4: Soil carbon amendments, dynamics & sequestration <i>Chair: Nicolas Brüggemann</i>	Topic 1.1: Impact of agriculture and cropping systems on soil functions – Impact of crop rotation <i>Chair: Traud Winkelmann</i>	Topic 4.4: Soil degradation and sustainable soil management in agricultural landscapes – Sustainable soil management <i>Chair: Michael Kuhwald</i>
10:30	Keynote: Johannes Lehmann Circular Bionutrient Economy: biochar-based fertilizer for nutrient recycling	<i>Nora Honsdorf; Katharina Pronkow; Henning Kage</i> Crop rotational position affects root health, soil water content, canopy temperature and yield in wheat	<i>Lukas Bayer; Alevtina Evgrafova; Marie Arndt; Katharina Helming</i> Uncertain futures for soils: scenarios for German soil management
10:45		<i>Jessica Arnhold; Dennis Grunwald; Heinz-Josef Koch</i> Roots and yield of winter wheat in different crop rotational positions under no and optimal N fertilization	<i>Maria Hollmann; Carola Paul</i> Economic evaluation of alley cropping agroforestry systems in Germany
11:00	<i>Morten Möller; Simon Dreßen; Miriam Athmann; Christian Bruns</i> Carbon and nutrient cycling in stockless organic farms – the future of sustainable farming?	<i>Hans-Martin Krause; Andreas Fliessbach; Klaus Jarosch; Astrid Oberson; Paul Mäder; Jochen Mayer</i> Crop production and environmental performance in organic and conventional farming systems – results from a 42 years old field experiment	<i>Veronika Strauss; Carsten Paul; Cenk Dönmez; Michael Löbmann; Katharina Helming</i> Sustainable soil management – a synthesis of stakeholder recommendations
11:15	<i>Axel Don; Felix Seidel; Claire Chenu; Daria Seitz; Thomas Kätterer; Jens Leifeld</i> Soil carbon-sequestration and climate mitigation – definitions and their implications	<i>Kathrin Grahmann; Ole Wendroth</i> Scale-dependent soil hydrological heterogeneity: Does diversified agricultural management affect the vadose zone under maize cropping?	<i>Stefan Frank; Ullrich Dettmann; Arndt Piayda; Merten Minke; Bärbel Tiemeyer</i> Peatland monitoring programme for climate protection (MoMoK) – Open land
11:30	<i>Julia Fohrafellner; Sophie Zechmeister-Boltenstern; Rajasekaran Murugan; Katharina Keiblinger; Heide Spiegel; Elena Valkama</i> Cover Crops Affecting Pool Specific Soil Organic Carbon Sequestration in Cropland – A Meta-Analysis	<i>Jessica Arnhold; Dennis Grunwald; Katharina Pronkow; Nora Honsdorf; Henning Kage; Heinz-Josef Koch</i> Effect of winter wheat grown in different crop rotational positions on soil structure	<i>Andrey Zaitsev; Birgit Lang; Bibiana Betancur-Corredor; Gabriel Salako; David Russell</i> Earthworm contribution to sustaining soil fertility: current challenges and spatial analysis prospects
11:45	<i>Tine Engedal; Jakob Magid; Veronika Hansen; Jim Rasmussen; Helle Sørensen; Lars Stoumann Jensen</i> Distinct fates of belowground C (including rhizodeposition) and MAOC- and POC formation efficiency from decomposing cover crops with varying C:N and root morphology: Findings from a one-year column trial	<i>Xorla Kanfra; Nills Orth; Kristin Hauschild; Holger Heuer; Traud Winkelmann</i> Insights into the early induction of apple replant disease	<i>David Piatka; Alexander Krämer; Johannes Engel; Ralf Kiese</i> Web-based decision support system for sustainable grassland management
12:00	Lunch break Lunch will be served in the Atrium and at the MOA-Restaurant (MOA eat)		
13:00	Poster session: topics 1, 3, 6, 7		
14:30	Coffee break		
15:00–16:00	Round Table discussion at BonaRes Conference – Soil as a sustainable resource Soil based solutions – managing conflicting demands for soil services		
19:00	Conference Dinner at MOA Restaurant		

Topic 1: Impact of agriculture and cropping systems on soil functions	
54	<i>Andrea Schmiedgen; Maren Langhof; Burkhard Stever-Schoo</i> Carbon storage potential of above and below ground biomass in agroforestry systems vs. crop monoculture
55	<i>Stefan Koch; Bernd Lennart</i> Changes in Solute Transport Pathways in a Sandy Soil After Long-Term Digestate Application
56	<i>Virna Moran Rodas; Nadine Herwig; Michael Rostás; Lukas Beule</i> Impact of tree rows on litter decomposition in temperate agroforestry systems
57	<i>Anna Vaupel; Zita Bednar; Nadine Herwig; Bernd Hommel; Virna Estefania Moran-Rodas; Lukas Beule</i> Earthworm Communities in Temperate Alley-Cropping Agroforestry Systems
58	<i>Ute Wollschläger; Axel Don; Christopher Poeplau; Ulrich Weller; Martin Wiesmeier; Hans-Jörg Vogel</i> Quantitative evaluation of soil functions – potential and state: application to the data of the German Agricultural Soil Inventory
59	<i>Eleonora Grilli; Iseult Malrieu; Hafiz Khuzama Ishaq; Micol Mastrocicco; Rosaria D’Ascoli; Elio Coppola; Simona Castaldi</i> Comparing the amelioration capacity of tillage vs no tillage measures on soil quality in a semi-arid prickly pear crop of Southern Italy
60	<i>Adrian Lattacher; Samuel Le Gall; Chao Gao; Moritz Harings; Youri Rothfuss; Ellen Kandeler; Christian Poll</i> Impact of contrasting root architectures of spring wheat on soil microbial community structure and activity
61	<i>Raphael Manu; Marife D. Corre; Marcus Schmidt; Fasil Mequanint; Edzo Veldkamp</i> Effects of temperate alley-cropping agroforestry on nitrate leaching losses
62	<i>Luise Ohmann; Susann Heinrich; Susanne Döhler</i> Possibilities and Limitations of Citizen Science in Soil Research based on results from “Expedition Erdreich”
63	<i>Katharina Pronkow; Nora Honsdorf; Henning Kage</i> Higher root-infection of wheat grown in a beginning monoculture affects canopy development, canopy temperature depression and yield
64	<i>Sarah Choe; Marife D Corre; Dan Niu; Edzo Veldkamp</i> Comparing the nutrient response efficiency in temperate alley-cropping agroforestry and open croplands under various field conditions
65	<i>Pauline Winkler; Katharina Winter; Jinyi Qian; Maximilian Skor; Benedikt Blaut; Robert Mikutta</i> Risk of nitrate leaching in organic agriculture with legume and animal dung as nitrogen sources
66	<i>Vera Porwollik; Kathlin Schweitzer; Michael Baumecker</i> Long-term crop yield performance and stability on a sandy soil
67	<i>Jacqueline Kaldun; Jiem Krüger; Nele Meyer; Nils Orth; Jens Boy; Georg Guggenberger; Traud Winkelmann; Eva Lehdorff</i> Apple Replant Disease – Which soil properties regulate its severity on regional scales?
68	<i>Olivier Heller; Loraine ten Damme; Tommy D’Hose; Pia Eutener; Miroslav Fér; Marta Goberna; Nicholas Jarvis; Thomas Keller; John Koestel; Bano Mehdi; Lars J. Munkholm</i> The impact of soil management on soil hydraulic and mechanical properties in European long-term field experiments
69	<i>Julien Roy; Amit Kumar; Vicky Temperton; Matthias Rillig</i> Plant-AMF network rewiring correlates with crop facilitation during intercropping
70	<i>Yue Hu; Klaus J. Dehmer; Evelin Willner; Bettina Eichler-Löbermann</i> Recycling products affect phosphorus efficiency of forage legumes in a two-year field trial
71	<i>Julien Roy; Daniel Lammel; Sidney Stürmer; Matthias Rillig</i> Using long-read amplicon PacBio sequencing for taxonomic and ecological studies of arbuscular mycorrhizal fungi
72	<i>Magdalena Wijata; Irena Suwara; Marcin Studnicki; Aneta Perzanowska</i> Effect of crop rotation and fertilisation on winter wheat yields and yield stability in a long-term experiments
73	<i>Samuel Le Gall, D. van Dusschoten, A. Lattacher, A. Sircan, M. Giraud, M. Harings, P. Deseano, C. Poll, G. Lobet, M. Javaux, Y. Rothfuss</i> Investigating the impact on water fluxes and yield of the combination of contrasted root wheat cultivars from isotopic analysis

Topic 3: Soil biomes and multifunctionality of soils	
74	<u><i>Sarah Benning; Fatma Mahmoud; Viviane Radl; Traud Winkelmann; Felix Mahnkopp-Dirks; Benye Liu; Peter Kämpfer; Michael Schloter</i></u> Genetic potential of newly discovered <i>Rhodococcus pseudokoreensis</i> and its impact as bioinoculant on apple replant soil
75	<u><i>Julia Sacharow; Santiago Quiroga; Stefan Ratering; Alessandra Dupont; Sylvia Schnell</i></u> Cercozoan diversity of agricultural soils during winter wheat and summer barley production
76	<u><i>Fatma M. Mahmoud; Souvik Kusari; Susanne Kublik; Sarah Benning; Roberto Siani; Sebastian Zühlke; Viviane Radl; Felix Mahnkopp-Dirks; Michael Schloter</i></u> Biocontrol Properties of the Root Endophyte <i>Priestia megaterium</i> B1: Genomic and Physiological Aspects
77	<u><i>Susanne Kublik; Silvia Gschwendtner; Tobias Magritsch; Viviane Radl; Matthias C. Rillig; Michael Schloter</i></u> Microplastics in soil induce a new microbial habitat
78	<u><i>Nils Orth; Felix Mahnkopp-Dirks; Michael Schloter; Viviane Radl; Silvia Gschwendtner; Traud Winkelmann</i></u> Endophytic <i>Streptomyces</i> in Apple Replant Disease affected roots differ in abundance depending on <i>Malus</i> genotype and soil origin
79	<u><i>Adriano Sofo; Alba Mininni; Carmine Crecchio; Assunta Maria Palese; Bartolomeo Dichio</i></u> Agroecosystem diversification and sustainable management lead to increased biodiversity, crop production and socio-economic advantages: a case-study of an Italian olive orchard
80	<u><i>Azin Rekowski; Santiago Quiroga; Stefan Ratering; Sylvia Schnell; Christian Zörb</i></u> Row distance and plant growth promoting bacteria effect on wheat baking quality
81	<u><i>Jiem Krueger; Jessica Schimmel; Jens Boy; Norman Gentsch; Daniel Uteau; Annmarie-Deetja Rohr; Traud Winkelmann; Belnaser Busnena; Benye Liu; Ludger Beerhues; Stephan Kaufhold; Dieter Rammlmair; Stefan Dultz; Georg Guggenberger</i></u> Impact of clay amendments to sandy soils with apple replant disease: Silica structure formation in the root tissue – a physical protection role?
82	<u><i>Christina Lachmann; Lina Weiß; Helen Ballasus; David Eichenberg; Ursula Nigmann; Andreas Krüß</i></u> The National Monitoring Centre for Biodiversity: ongoing work on soil biodiversity
83	<u><i>Jing-Zhong Lu; Amandine Erktan</i></u> Trophic interactions in collembolans at the soil pore scale
84	<u><i>Jan H. Behr; Narges Moradtalab; Doreen Babin; Loreen Sommermann; Soumitra Paul Chowdhury; Saskia Windisch; Theresa Kuhl-Nagel; Ioannis D. Kampouris; Davide Francioli; Michael Rothballer; Ingo Schellenberg; Joerg Geistlinger; Uwe Ludewig; Günther Neumann; Karnelia Smalla; Rita Grosch</i></u> Application of beneficial microorganisms shapes microbial communities in the rhizosphere of maize by influencing the composition of root exudates
85	<u><i>Thomas Hurek; Sina Duschek; Ulf Feuerstein; Bernhard Bauer; Barbara Reinhold-Hurek</i></u> Quantification of arbuscular mycorrhizal fungi in roots by quantitative PCR
86	<u><i>Xiaohui Han; Yang Ding; Martin Komanda; Kyle Mason-Jones; Michaela Dippold; Callum Banfield</i></u> Intracellular Carbon Storage: An Intermediate Carbon Reservoir in Grasslands?
87	<u><i>Gabriele Berg; Daniel Höfle; Olimi Expedito; Tomislav Cernava; Ahmed Abdelfattah</i></u> Soil microbial diversity is crucial for plant health
Topic 6: Using soil sensing technologies for soil mapping, modelling and decision making in agriculture	
88	<u><i>Stefan Pätzold; Matthias Leenen; Sebastian Vogel; Ralf Wehrle</i></u> Influencing variables in mobile gamma spectrometry and their relevance for texture prediction in precision agriculture
89	<u><i>Ralf Wehrle; Stefan Pätzold</i></u> Portable mid-infrared attenuated total reflectance and Random Forest regression for the prediction of soil parameters in soil suspensions
90	<u><i>Mona Aghabeygi; Veronika Strauss; Carsten Paul; Katharina Helming</i></u> Barriers of adopting soil improving management practices for organic and conventional farming systems

91	<u>Sebastian Vogel</u> ; <u>Ingmar Schröter</u> ; <u>Eric Bönecke</u> ; <u>Wolfgang Schwanghart</u> ; <u>Jörg Rühlmann</u> ; <u>Eckart Kramer</u> ; <u>Robin Gebbers</u> The effect of soil moisture content and soil texture on fast in situ pH measurements with two types of robust ion-selective electrodes
92	<u>Kay Sowoidnich</u> ; <u>Peteh Mehdi Nkebiwe</u> ; <u>Tobias Edward Hartmann</u> ; <u>Daniel Wanke</u> ; <u>Torsten Müller</u> ; <u>Martin Maiwald</u> ; <u>Bernd Sumpf</u> Raman microscopy on phosphates in soil
93	<u>Thomas Piernicke</u> ; <u>Jan Lukas Wenzel</u> ; <u>Daniel Spengler</u> ; <u>Christopher Conrad</u> ; <u>Sibylle Itzerott</u> ; <u>Julia Pöhlitz</u> Estimating a water balance model for precision agriculture by integrating multispectral UAV with multispectral station data
94	<u>Ingmar Schröter</u> ; <u>Eckart Kramer</u> ; <u>Eric Bönecke</u> ; <u>Sebastian Vogel</u> ; <u>Jörg Rühlmann</u> ; <u>Sandra Post</u> A comparative study to estimate soil organic matter at field scale using VHR-RGB satellite imagery
95	<u>Pablo Rosso</u> ; <u>Siyu Huang</u> ; <u>Sebastian Vogel</u> ; <u>Eric Bönecke</u> ; <u>Robin Gebbers</u> Predicting yield at high spatial resolution using soil sensing and crop models
96	<u>Kurt Heil</u> ; <u>Martin Mittermayer</u> ; <u>Kurt-Jürgen Hülsbergen</u> ; <u>Urs Schmidhalter</u> In-Situ Estimation of Upper Soil Properties Using a Multi-Sensor Probe
97	<u>Marco Lorenz</u> ; <u>Maike Weise</u> ; <u>Joachim Brunotte</u> Detecting the spatial distribution of dynamic soil loads with the SOILAssist-Sensorsystem (SASS)
98	<u>Isaak Ihorst</u> Semantic event generation for agricultural processes through stream processing
Topic 7: Soils as a key to climate change mitigation: private and public governance instruments to unlock the potential	
99	<u>Peter Breunig</u> ; <u>Jonas Schön</u> Cover Crops and Carbon Farming – An Economic Analysis based on Typical Farms
100	<u>Jutta Will</u> ; <u>Jürgen Braun</u> Development of a modelling approach to assess and quantify relative benefits and trade-offs of innovative management options in agricultural systems
101	<u>Veronika Strauss</u> Agricultural carbon dioxide removal (CDR) measures – potentials, impacts, influencing factors, and perceived attractiveness
102	<u>Bharat Shrestha</u> ; <u>Tiffany Traverse</u> ; <u>Patrick Neuberger</u> Effects of Organic Amendments on Soil Health in an Indigenous Farm in the Northern Peace River Region of Canada

Programme on Wednesday, 17th May 2023

	MOA 5	MOA 4	MOA 3
8:00	Registration		
	Topic 1.2: Impact of agriculture and cropping systems on soil functions – Nutrients and the soil biome <i>Chair: Sandra Spielvogel</i>	Topic 7: Soils as a key to climate change mitigation: private and public governance instruments to unlock the potential <i>Chairs: Christopher Just & Carsten Paul</i>	Topic 3.1: Soil biomes and multifunctionality of soils – Soil microbiomes as catalysts for energy and matter fluxes in soil <i>Chair: Michael Schloter</i>
8:30	* <i>Michael Dannenmann; Ralf Kiese; Mirella Schreiber; Jincheng Han; Ingrid Kögel-Knabner; Anke Jentsch; Michael Schloter; Alexander Krämer; Martin Wiesmeier</i> Grassland fertilizer management and soil functions – a synthesis of SUSALPS research	<u>Keynote: Ana Frelih Larsen</u> Soils and climate change mitigation: priorities and the required policy mix in the EU	<u>Keynote: Naoise Nunan</u> Energetic and abiotic constraints on soil microbial community activities
8:45	<i>Katrin Schneider; Anne Schucknecht; Rainer Gasche; Ralf Kiese</i> Water and nitrogen dynamics in a pre-Alpine managed grassland ecosystem under climate change		
9:00	<i>Sandra Münzel; Carmen Feller</i> Monitoring results of extensive soil analyses on farms in Central Europe	<i>Klaas Korte; Erik Gawel; Romina Schaller; Till Markus</i> Governmental regulation for the efficient use of land use-based CDR options	<i>Michaela A. Dippold; Sara Loftus; Rosepiah Munene; Osman Mustafa; Nipuna Withanage; Kevin Mganga; Mutez Ahmed</i> More crop per drop: Rhizosphere traits to overcome multiple resource limitation
9:15	<i>Theresa Kuhl-Nagel; Doreen Babin; Loreen Sommermann; Jan Helge Behr; Soumitra Paul Chowdhury; Michael Rothballer; Narges Moradtalab; Uwe Ludewig; Davide Francioli; Ioannis Kampouris; Kornelia Smalla; Ingo Schellenberg; Jörg Geistlinger; Günter Neumann; Rita Grosch</i> Metagenomic analysis reveals changes in rhizosphere microbial community functions upon maize inoculation with beneficial microorganisms	<i>Carsten Paul; Bartosz Bartkowski; Cenk Dönmez; Axel Don; Stefanie Mayer; Markus Steffens; Sebastian Weigl; Martin Wiesmeier; André Wolf; Katharina Helming</i> Carbon farming: are soil carbon certificates a suitable tool for climate change mitigation?	<i>Diana Rocío Andrade-Linares; Sonia Melz; Stefanie Schulz; Max Schuchardt; Noelia García-Franco; Martin Wiesmeier; Michael Dannenmann; Anke Jentsch; Michael Schloter</i> Interacting effects of climate change and land use intensity on soil microbial diversity and abundance in pre-alpine grassland sites
9:30	<i>Bibiana Betancur Corredor; Andrey Zaytsev; David Russell</i> Response of soil fauna to agricultural intensification in a global meta-analysis	<i>Susanna Höhle; Dr. Claudia Heidecke; Bernhard Osterburg</i> Reporting of carbon farming measures in selected European countries	* <i>Lukas Beule; Marife D. Corre; Jie Luo; Victor Guerra; Zita Bednar; Anna Vaupel; Bernd Hommel; Nadine Herwig; Guodong Shao; Virna Estefania Moran-Rodas; Edzo Veldkamp</i> Temperate agroforestry promotes soil biota and reduces N ₂ O emissions
9:45	<i>Benjamin Fuchs</i> Soil-mediated effects of agrochemical use on plant hormone regulation and plant resistance to insects	<i>Mohamed El Mderssa; Hicham Ikraoun; Laila Nassiri; Jamal Ibijbijen</i> Moroccan forest ecosystems and climate change: soil carbon sequestration as a mitigation strategy	* <i>Stefanie Katharina Niedermaier; Akane Chiba; Michael Schloter; Christel Baum; Manuela Peine; Peter Leinweber; Stefanie Schulz</i> Improvement of P mobilization from smart fertilizers by Bacillus inocula
10:00	Coffee break		

Programme on Wednesday, 17th May 2023

	MOA 5	MOA 4	MOA 3
	<p>Topic 1.3: Impact of agriculture and cropping systems on soil functions – Soil health and carbon <i>Chair: Katharina Helming</i></p>	<p>Topic 6.1: Using soil sensing technologies for soil mapping, modelling and decision making in agriculture – Sensor data processing and sensor applications <i>Chair: Marco Lorenz</i></p>	<p>Topic 3.2: Soil biomes and multifunctionality of soils – Microbes and their role for plant health <i>Chair: Barbara Reinhold-Hurek</i></p>
10:30	<p>Keynote: Rachel Creamer Quantifying Soil Health throughout Europe</p>	<p>Hamed Tavakoli; José Correa; Sebastian Vogel; Robin Gebbers Improving soil fertility assessment from laboratory and in-situ Vis-NIR spectroscopy</p>	<p>* Sarah Benning; Kristin Hauschild; Alicia Balbin-Suárez; Fatma Mahmoud; Nils Orth; Felix Mahnkopp-Dirks; Carolin Popp; Tom Pielhop; Gisela Grunewaldt-Stöcker; Kornelia Smalla; Viviane Radl; Michael Schloter; Edgar Maiß; Sabine Kind; Traud Winkelmann Apple replant disease: A consequence of a microbial dysbiosis in different soil and plant habitats?</p>
10:45		<p>Jonas Schmidinger; Ingmar Schröter; Eric Bönecke; Robin Gebbers; Jörg Rühlmann; Eckart Kramer; Leatitia Mulder; Gerard B.M. Heuvelink; Sebastian Vogel Effect of sample size, sampling design and calibration model on generating soil maps from proximal sensing data for precision liming</p>	<p>Alicia Balbin Suarez; Felix Mahnkopp-Dirks; Traud Winkelmann; Sabine Kind; Kornelia Smalla Apple Replant Disease microbial signature</p>
11:00	<p>Laura Skadell; Florian Schneider; Martina Gocke; Julien Guigue; Wulf Amelung; Sara Bauke; Eleanor Hobley; Dietmar Barkusky; Bernd Honermeier; Ingrid Kögel-Knabner; Urs Schmidhalter; Kathlin Schweitzer; Sabine Seidel; Stefan Siebert; Michael Sommer; Yavar Vaziritabar; Axel Don Impact of long-term agricultural management on stocks and quality of soil organic matter</p>	<p>José Correa; Hamed Tavakoli; Sebastian Vogel; Robin Gebbers Risk of data leakage in model calibration using lab-based and in-situ NIR spectroscopy</p>	<p>Belnaser Busnena; Benye Liu; Ludger Beerhues Apple root phytoalexins exhibit inhibitory activity against a panel of apple replant disease related microbes</p>
11:15	<p>Christopher Just; Ingrid Kögel-Knabner; Martin Wiesmeier The POM-C / MAOM-C ratio as an indicator for sustainable soil organic carbon management of arable soils</p>	<p>Marie Uksa; Ulrike Werban; Anja Miltner; Manuel Kreck; Marco Pohle; Yiqing Zhang; Lukas Y. Wick Field-scale prediction of soil microbial activities and pesticide degradation potential using proximal and remote sensing technologies</p>	<p>* Loreen Sommermann; Jan H. Behr; Doreen Babin; Narges Moradtalab; Soumitra Paul Chowdhury; Ioannis Kampouris; Davide Francioli; Theresa Kuhl-Nagel; Michael Rothballer; Ingo Schellenberg; Rita Zrenner; Kornelia Smalla; Uwe Ludewig; Günter Neumann; Joerg Geistlinger; Rita Grosch² Influence of plant beneficial micro-organism application on maize in two growing seasons exhibiting contrary abiotic stress conditions</p>
11:30	<p>Henrike Heinemann; Felix Seidel; Axel Don; Juliane Hirte Increasing root-derived soil carbon input to agricultural soils by genotype selection</p>	<p>* Frauke Lindenstruth; Michael Kuhwald; Katja Augustin; Rainer Duttmann UAV-Based Detection of Soil Compaction in former Tramlines in Silage Maize Fields</p>	<p>Andrea Braun-Kiewnick; Adriana Giongo; Priscilla Zamberlan; Patrick Pluta; Doreen Babin; Kornelia Smalla Potential of plant-beneficial bacterial inoculants to mitigate yield decline in continuous wheat rotations</p>
11:45	<p>Nkosinomusa Dube; K. Phukubye; M. Mutema; Pardon Muchaonyerwa; Vincent Chaplot Long-term effects of time of biennial burning and mowing frequency on soil organic carbon and selected soil properties on a semiarid grassland</p>	<p>Ludwig Haq; Pablo Rosso; Laura Flores Palma; Martin Mittermayer; Kurt-Jürgen Hülsbergen Comparison of two different satellite-based methods of delineating field management zones for precision agriculture</p>	<p>* Santiago Quiroga; Stefan Ratering; Azin Rekowski; Christian Zörb; Sylvia Schnell Effects of seed inoculation of wheat and barley in organic farming on plant parameter and the rhizosphere microbiome</p>
12:00	<p>Lunch break Lunch will be served in the Atrium and at the MOA-Restaurant (MOA eat)</p>		

Programme on Wednesday, 17th May 2023

	MOA 5	MOA 4	MOA 3
	Topic 1.4: Impact of agriculture and cropping systems on soil functions – Cover cropping and soil structure <i>Chair: Rita Grosch</i>	Topic 6.2: Using soil sensing technologies for soil mapping, modelling and decision making in agriculture – Novel sensor technologies for soil sensing <i>Chair: Sebastian Vogel</i>	Topic 3.3: Soil biomes and multifunctionality of soils – Plant-soil feedbacks <i>Chair: Sylvia Schnell</i>
13:00	* <i>Robin Kümmerer</i> Optimizing cover crop mixtures for enhanced soil functions resulting in stabilization of crop yields	Keynote: Abdul Mouazen The Role of Proximal Soil Sensing Technologies and Data Fusion Modelling in Precision Management of Farming Input Resources	* <i>Vicky Temperton; Stefanie Schulz; Amit Kumar; Michael Schloter; Matthias Rillig; Julien Roy; Rüdiger Reichel; Nicolas Brüggemann; Michael Bonkowski; Kenneth Dumack</i> The relative importance of recent and older soil legacies on crop performance: insights into the relationship between plant performance and microbial diversity from a plant-soil feedback experiment
13:15	<i>Norman Gentsch; Diana Heuermann; Jens Boy; Dörte Schwenecker; Ulf Feuerstein; Georg Guggenberger; Florin Laura Riechers</i> Cover crops improve soil structure and change OC distribution in macro-aggregate fractions		<i>Debjoyoti Ghosh; Yijie Shi; Tobias Stürzebecher; Henrik Füllgrabe; Katja Holzhauser; Iris Zimmermann; Michaela A. Dippold; Sandra Spielvogel²; Jochen A. Müller; Nico Jehmlich</i> Exploring the impact of maize (Zea mays) re-rooting with cover crops on soil microbial communities
13:30	<i>Diana Heuermann; Stefanie Döll; Norman Gentsch; Robin Kümmerer; Barbara Reinhold-Hurek; Thomas Hurek; Dörte Schwenecker</i> Catch crops affect the root system distribution of subsequently grown maize	<i>Kay Sowoidnich; Martin Maiwald; Bernd Sumpf</i> Shifted excitation Raman difference spectroscopy for soil analysis – From lab to field	* <i>Nicolas Tyborski; Tina Köhler; Franziska Steiner; Shu-Yin Tung; Andreas J. Wild; Andrea Carminati; Carsten W. Müller; Alix Vidal; Sebastian Wolfrum; Barbara Eder; Jennifer Groth; Wouter K. Vahl; Johanna Pausch; Tillmann Lüders</i> Assembly and adaptation of the root associated bacterial microbiome compared among varieties of Zea mays L. and under drought
13:45	* <i>Yijie Shi; Dr. Iris Zimmermann; Tobias Stürzebecher; Henrik Fuellgrabe; Katja Holzhauser; Debjoyoti Ghosh; Bahar Razavi; Henning Kage; Michaela Dippold; Sandra Spielvogel</i> Cover crop mixtures optimize C allocation in the subsoil and promote nutrient uptake during maize cultivation	<i>Alexander Erler</i> Laser-induced breakdown spectroscopy for proximal soil sensing in precision agriculture	<i>Adriano Sofo; Francesco Reyes; Maddalena Curci; Mohammad Yaghoubi Khanghahi; Carmine Crecchio</i> Earthworm-driven changes in soil physicochemical and biological parameters, litter decomposition and plant growth
14:00	<i>Sara Bauke; Dymphie J. Burger; Florian Schneider; Timo Kautz; Axel Don; Wulf Amelung</i> Fifty years after deep-ploughing: effects on yield, roots, nutrient stocks and soil structure	* <i>Mohamed Bourouah</i> Capillary electrophoresis: Cost-effective measurement method for the analysis of soil nutrients	<i>Zita Bednar; Anna Vaupel; Simon Blümel; Nadine Herwig; Bernd Hommel; Verena Haberlah-Korr; Lukas Beule</i> Earthworm and Soil Microbial Communities in Flower Strips
14:15	<i>Karen Prilop; Anna Jacobs; Marco Lorenz</i> Teaching the topic “soil compaction” in agricultural technical schools – analyses and contribution from the project SOILAssist	<i>Santiago Focke Martinez; Isaak Ihorst</i> On-board assistance system for soil protection during harvesting	<i>Markus Schemmel; Zheng Zhou; Lingyue Han; Daguang Cai</i> Identification of fungal indicator species and transcriptomic changes in plants affected by pre-wheat cultivation
14:30	Coffee break		
15:00	Closing Session, Young Scientist Awards & Farewell		
15:30		BonaRes Data Management Workshop – “Data Publication and Reuse”	

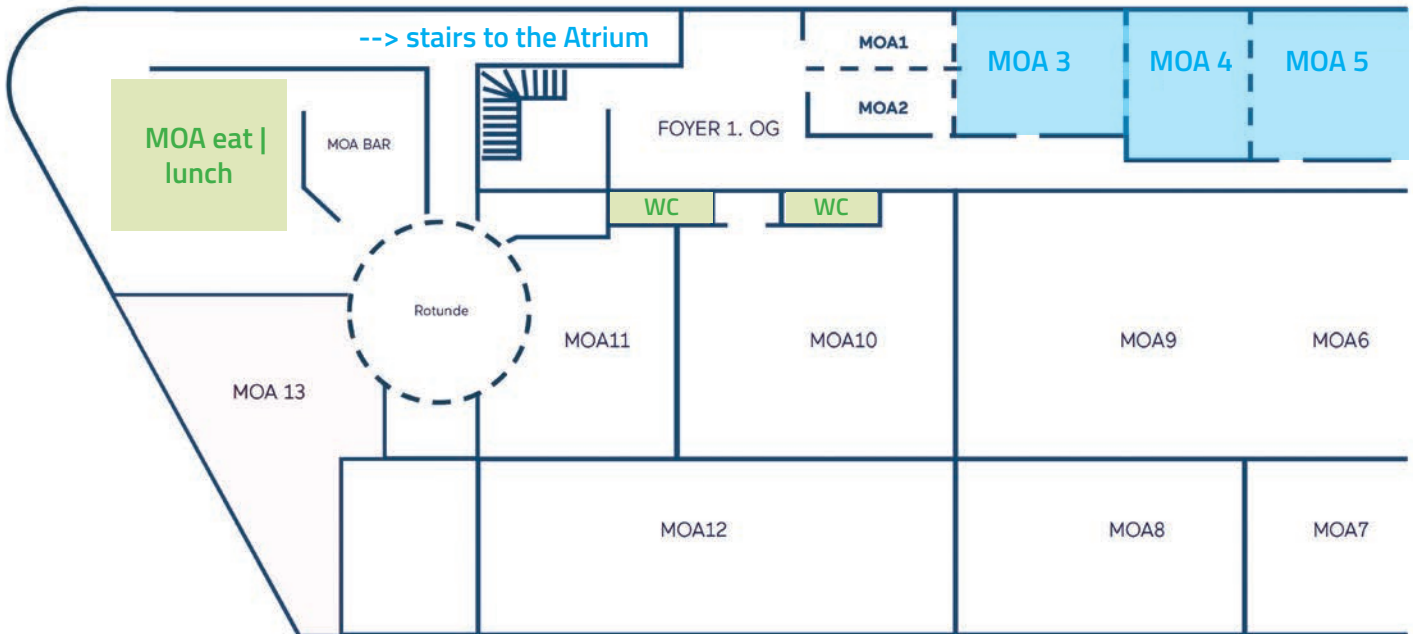
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MOA Berlin – your conference venue

1st floor:

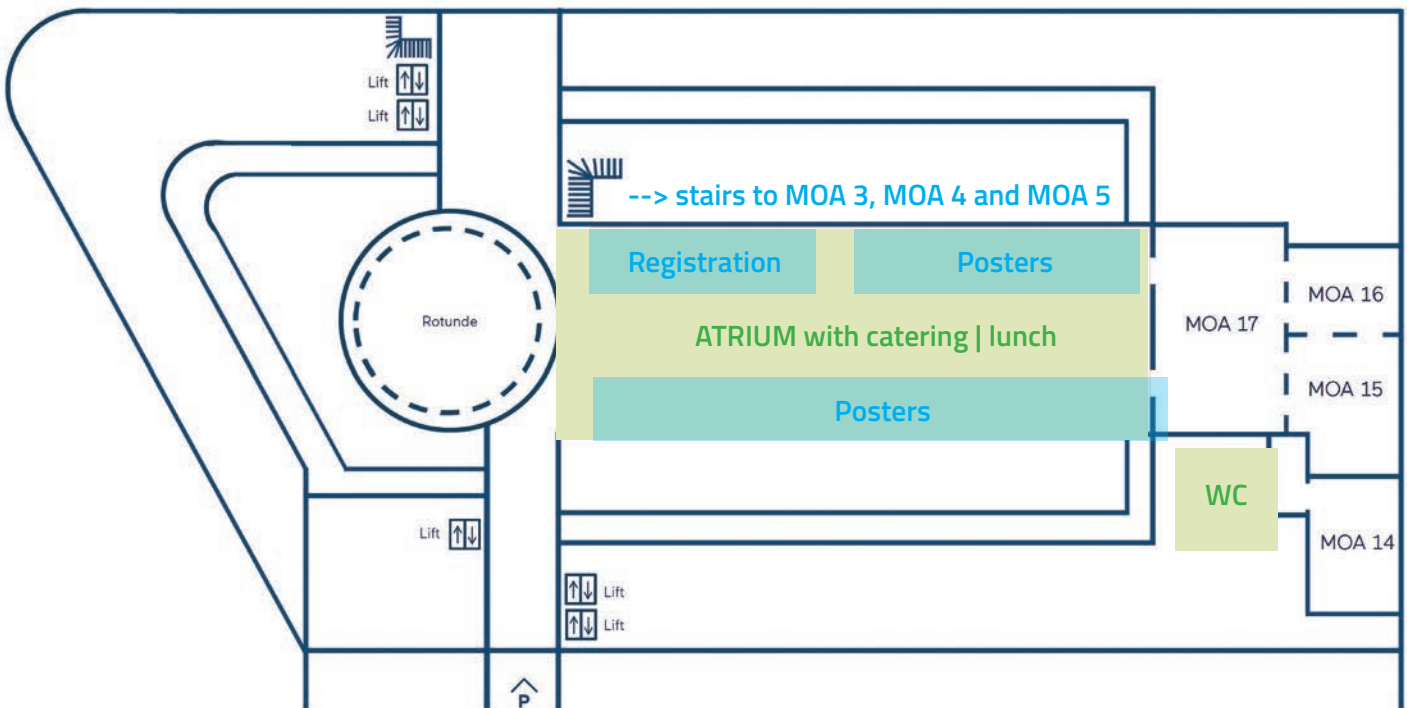
Conference halls [MOA 3](#), [MOA 4](#) and [MOA 5](#)

Restaurant – conference dinner & lunch location: [MOA eat](#)



2nd floor: Atrium

[Atrium](#) with [registration desk](#), [poster exhibition](#) & [catering](#)



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