NIR2023
INNSBRUCK

NIR2023.AT

PROGRAMME
BOOK

NIR 2023

21ST INTERNATIONAL CONFERENCE ON NEAR INFRARED SPECTROSCOPY

GOOD VIBRATIONS, SMOOTH CONTOURS

August 20-24, 2023 INNSBRUCK - AUSTRIA

NIR2023

Welcome to Innsbruck!

21st International Conference on Near Infrared Spectroscopy

We love continuity! Once again, Bruker is proud sponsor of NIR2023 to support the global NIR community.

Why not visit us at our booth for a good chat and a quick look at our latest portfolio:

- **TANGO:**
The next generation FT-NIR spectrometer with touch screen operation and intuitive user interface.

- **MPA II:**
Unrivalled flexibility for your daily QA/QC work as well as for sophisticated method development.

- **MATRIX-F II:**
On-line FT-NIR for direct measurements in continuous or batch processes, enabling a close production control.

Wishing you "Good vibrations, smooth contours" with FT-NIR!

More information:
www.bruker.com/FT-NIR

Innovation with Integrity

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WELCOME

WELCOME TO NIR 2023!

It is our great pleasure to cordially invite you to participate in the International Conference on Near Infrared Spectroscopy (NIR 2023 Innsbruck), which will be held from Sunday through Thursday, August 20-24, 2023, at the Congress Innsbruck, Austria.

The NIR symposium series is known as the world's leading biannual conference on this fast growing technology which usually attracts well over 500 participants. The program will span from fundamentals of spectroscopy, over methodological and technological advances to the integration of the wide range of applications. The symposium will feature workshops, tutorials, plenary, keynote and research lectures from leading and upcoming scientists in the field.

Lectures and poster presentations will be selected from submitted abstracts to make sure that participants find ample opportunities to share and to discuss their latest findings with the audience in a stimulating atmosphere.

As an integral part of NIR2023 Innsbruck a representative exhibition of the leading vendors in the field will be organized to round up the concept of the symposium and to complement the programme.

2023 will be the first time that the NIR symposium series will come to Austria and Innsbruck, the capital city of the county of Tyrol, in the heart of the Alps. It is world famous for its location, it is a hot spot for science, tradition, culture and sports.
After the pandemic, we can't wait to meet in person once again.

We are very much looking forward to welcoming you to Innsbruck, Austria.
"Good Vibrations, Smooth Contours!" is our motto symbolizing the location and the emulation of science, stimulating atmosphere and personal contacts.

Very much looking forward to welcoming you in Innsbruck, we remain with best regards.

Christian W. Huck
Chairperson

COMMITTEES

ORGANIZING COMMITTEE

Christian Huck	University of Innsbruck, Austria
Wolfgang Lindner	University of Vienna, Austria
Krzysztof Bec	University of Innsbruck, Austria
Justyna Grabska	University of Innsbruck, Austria
Matthias Rainer	University of Innsbruck, Austria

SCIENTIFIC COMMITTEE

Günther K. Bonn	University of Innsbruck, Austria
Nanning Cao	CNIRS, Ardent Mills, USA
Miroslaw Czarnecki	University of Wrocław, Poland
Soren Balling Engelsen	University of Copenhagen, Denmark
Ana Garrido-Varo	University of Cordoba, Spain
Longhai Guo	Beijing University, China
Christian Huck	University of Innsbruck, Austria
Zoltán Kovács	Hungarian University of Agriculture and Life Sciences, Hungary
Wolfgang Lindner	University of Vienna, Austria
Marena Manley	University of Stellenbosch, South Africa
Roger Meder	Meder Consulting, Australia
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Celio Pasquini	University of Campinas, Brazil
Heinz Siesler	University of Duisburg-Essen, Germany
Roumiana Tsenkova	Kobe University, Japan
Satoru Tsuchikawa	Nagoya University, Japan

CONFERENCE ORGANISATION

HOSTED BY

ASAC
AUSTRIAN SOCIETY OF ANALYTICAL CHEMISTRY

IN COOPERATION WITH

GDCH

CONFERENCE CHAIR

Christian W. Huck
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CONFERENCE ORGANISATION

PCO Tyrol Congress
Rennweg 3, 6020 Innsbruck, Austria
T: +43(0)512 575600
E: nir23@cmi.at

cmi PCO TYROL CONGRESS
professional congress organisers

EXHIBITION & SPONSORSHIP

S12! studio 12 GmbH
Kaiser Josef Straße 9
6020 Innsbruck, Austria
E: office@studio12.co.at

studio12 gmbh S12!

SPONSORS & EXHIBITORS

The NIR 2023 would like to thank the following sponsors and exhibitors for their support.

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Springer Analytical & Bioanalytical Chemistry

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Elsevier

Handl Tyrol

ASAC Austrian Society of Analytical Chemistry

GDCh Gesellschaft Deutscher Chemiker

JCNIRS

LC GC

adsi Austrian Drug Screening Institute

POSTER PRIZES

Springer Analytical & Bioanalytical Chemistry

SHIMADZU Excellence in Science

COMPANY PROFILES

AB Vista
AB Vista is a global animal nutrition technology company offering pioneering products and technical services to the global animal feed industry. Since its establishment in 2004, AB Vista has grown to be a top-three player in feed enzymes. Working in close collaboration with academics and customers, AB Vista is committed to developing new nutritional applications based on scientific insight. This is achieved through research, nutritional expertise, and the ability to analyse nutritional factors – the combination of which is referred to as "feed intelligence". AB Vista NIR Services (AKA Aunir) is our NIR division devoted to developing NIR applications within the animal feed sector and adjacent industries supporting our feed intelligence approach.

ABB
ABB AG is a global leader in power and automation technologies, headquartered in Zurich. With over 130 years of experience, ABB develops and delivers innovative solutions for utilities, industrial companies and infrastructure operators. Its broad product range includes transformers, switchgear, motors, drive systems, robots and environmental measurement technology. ABB is known for pioneering technologies in the fields of electrification, industrial automation, robotics and drive technology. The company also sets standards in analytical measurement technology for various industrial applications and in compliance with emission limits. ABB places great emphasis on sustainability and is actively committed to environmentally friendly solutions and efficient energy use. With its global network, ABB provides first-class service and support to customers worldwide.

Bionorica
Bionorica, headquartered in Bavaria, Germany, is one of the leading manufacturers of herbal medicinal products in the world. We make modern medicine a bit more plant-based for the health of people every day. We combine modern pharmaceutical research with the effectiveness of plants. The complexity of herbal active ingredients, their cultivation and processing requires a high level of analytical skills. For decades, Bionorica has therefore relied on close cooperation with university experts and operates a research site in the Tyrolean capital Innsbruck to be part of a close research network in the field of phytoanalytics and medicinal plant research.

Bruker
Bruker Optics, part of the Bruker Corporation is one of the world's leading manufacturer and worldwide supplier of Fourier Transform Infrared, Near Infrared and Raman spectrometers. Bruker entered the field of FTIR spectroscopy in 1974. The first dedicated FT-NIR spectrometer in 1992 laid the

foundation for an ongoing success story.
Today, Bruker's FT-NIR analyzer portfolio covers a wide range of spectrometers, from the TANGO, a small, touch screen accessible, analyzer to the multi-channel analyzer MPA II for the full range of liquid, solid and semi-solid samples up to fully automated in-process system MATRIX-F II for closed loop control.

HySpex
Norsk Elektro Optikk (NEO) is a research and development company that specializes in electro optics. They were founded in 1985 and have since become the largest independent research and development organization in Norway in this field. NEO is known for cutting-edge research and development, and their products are used by customers around the world.
HySpex, NEO's line of line of hyperspectral imagers, is a leading brand of hyperspectral imaging solutions, with a long history of innovation. HySpex sensors are known for their stability, flexibility, and data quality. HySpex customers include industries and research communities around the world.

itphotonics
Our core business is the applied spectrometry. We are experts in spectrophotometric solutions, in electronic and software design.
We are a dynamic and creative company born in 2012, specialized in spectrophotometry and applied electronics. We use our knowledge and theoretical and practical methodologies to design and build electronic systems and measuring instruments. Our core business is applied spectrophotometry, in its various forms and for each application sector. We work to design and build systems for rapid and non-destructive measurements, suitable for all contexts where precise, immediate and multi-parameter information is required. This allows us to study and obtain technological solutions for various fields of application, to manage the variables necessary for the integration of systems in different environments and to solve the specific needs of each production process.
We deal with SPECTROMETRY, ELECTRONICS, SOFTWARE and CHEMOMETRY to offer complete solutions to our customers.

KAX Group
KAX Group was founded in 2017 by two world recognised experts in the development and application of multivariate data analysis (MVDA) software. Our flagship product VEKTOR DIREKTOR was designed with end users in mind and was developed by end users for end users.
With a combined 40+ years of industrial and academic experience, the founders of KAX Group have delivered custom software solutions to the pharmaceutical, agricultural, food and beverage and petrochemical industries where we have solved difficult process and product issues with our data modelling solutions.

Metrohm
Metrohm is one of the world´s most trusted manufacturers of high-precision instruments for chemical analysis. We are global market leader in ion analysis technology and a big player in spectroscopy.
Founded in 1943 in Switzerland, today, Metrohm is present in more than 80 countries with its own subsidiaries and exclusive distributors. As a globally active enterprise, we are aware of our economic, social, and environmental responsibilities - and we act accordingly.
Our success is secured by our intensive and innovative in-house development and a maximum possible degree of vertical integration. We protect our knowledge through an unparalleled commitment to application development and support.
Whatever your requirements - we have the right NIR spectrometer for you! Our portfolio of near-infrared spectrometers includes laboratory and process solutions for various industries.
Swiss quality you can trust.

PerkinElmer
PerkinElmer is a trusted global solutions provider with an 80+ year track record of bringing thought- leadership, innovation, and technology to our customers to enable and accelerate scientific outcomes. Our end-to-end solutions and services provide our customers the innovative technologies needed to reshape the world for the better. When choosing PerkinElmer, you have an experienced partner in laboratory management, analytical testing and access to our global service network. Utilising our scientific knowledge, we strive to provide you with the products, services and expertise that matter most to your laboratory.

Shimadzu Europa GmbH
As one of the world leaders in analytical instrumentation, Shimadzu develops and manufactures innovative systems for laboratories in industry, science, and research. The company was founded in 1875 Kyoto, Japan. In Europe, Shimadzu has been active for 55 years, with over 900 employees and maintains subsidiaries, sales offices, and strategic partnerships in 48 countries. The European headquarters is in Duisburg, Germany. More than 13,000 employees work for Shimadzu Corporation in 74 countries worldwide. Our product range includes mass spectrometry, chromatography, life sciences, spectroscopy (UV-Vis-NIR, FTIR, ICP, AAS), sum parameters (TOC) as well as equipment for materials testing.
A new standard in spectroscopy has been set with the unique AIRsight microscope which combines FTIR and Raman technique.
For more details please check Analytics | Shimadzu Europe

NeoSpectra by Si-Ware
Si-Ware's NeoSpectra Scanner brings rapid, laboratory-grade material analysis insights to the field, lab, or production floor. Based on our patented MEMS FT-NIR spectrometer, the technology delivers reliable results in seconds from an easy-to-use handheld scanner and intuitive apps. NeoSpectra users can select from hundreds of ready-to-use models from leading calibration developers such as AB Vista/Aunir, Nutricontrol, Rock River Laboratory, Inc., and Dairyland Laboratories. For more information, visit www.si-ware.com

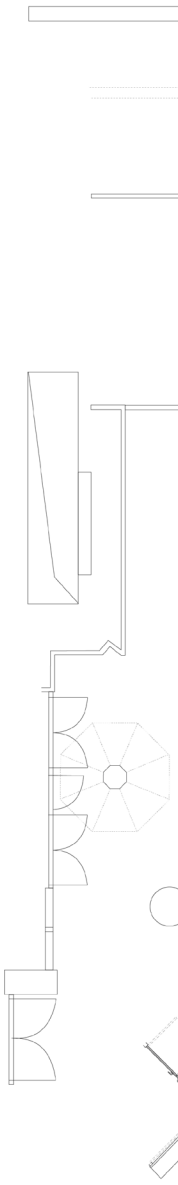
trinamiX
BASF subsidiary trinamiX has a long-standing experience in developing miniaturized NIR spectroscopy solutions based on trinamiX's own patented near-infrared detectors. Over the years, trinamiX has built up extensive in-house spectroscopy and data science know-how with passionate teams around leading optical and application engineers. In addition, trinamiX has been leveraging a unique spectroscopy ecosystem as it collaborates with renowned laboratories, research institutes and companies from different industries to develop solutions for reliable on-the-spot decision making.

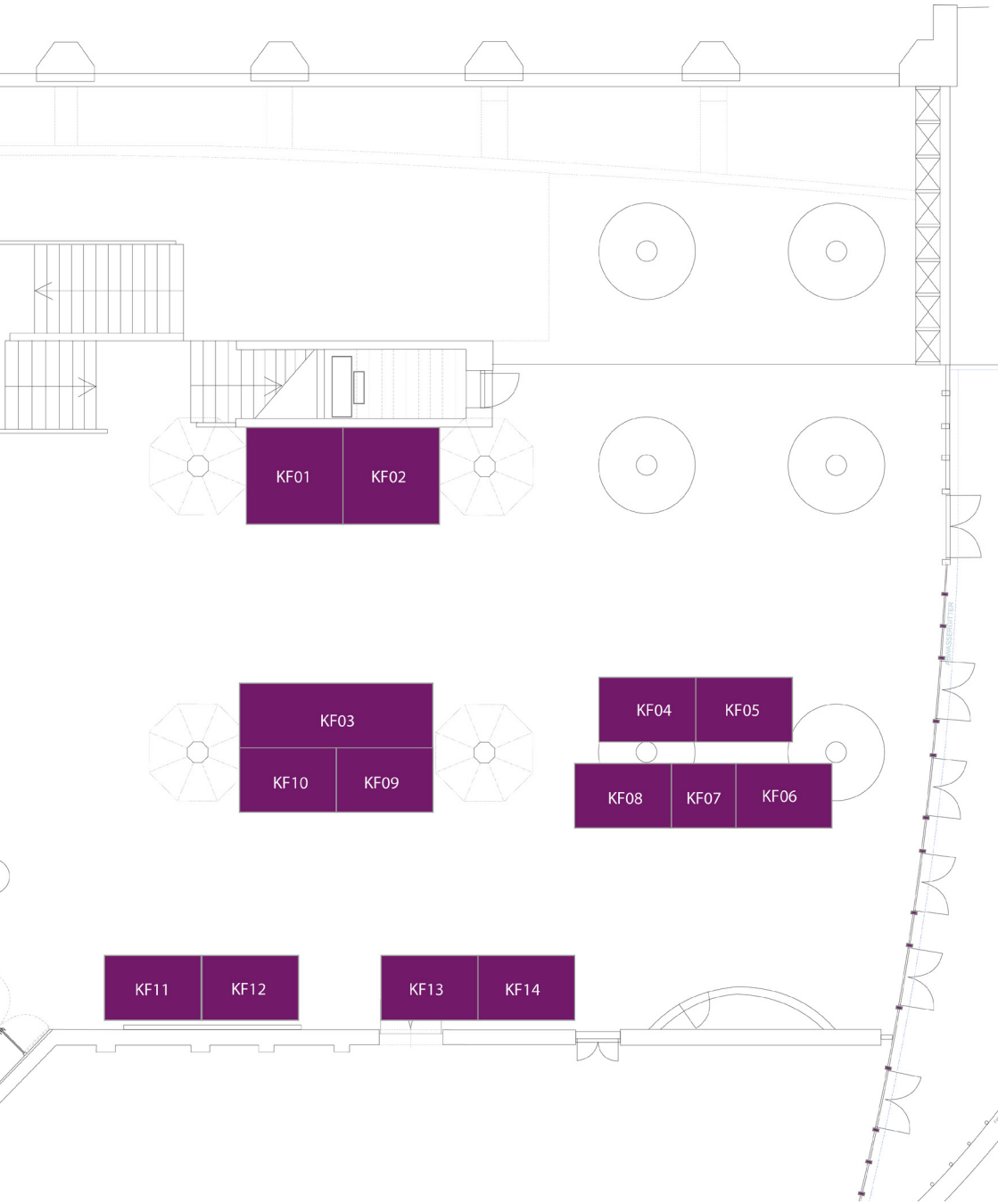
Viavi
Viavi Solutions designs & manufactures the MicroNIR™ family of Near Infrared sensor solutions for non-destructive analysis in both handheld and on-line applications in food, agriculture, pharmaceutical, chemical, industrial, and R&D. The MicroNIR PAT is a versatile process spectrometer designed for use in real-time monitoring (batch or continuous) of manufacturing operations. The MicroNIR OnSite is a rugged handheld analyzer for rapid analysis of raw materials and critical quality attributes of finished product. The MicroNIR products offer Scientists & Engineers solutions for supply chain and manufacturing processes. For more information visit micronir.com

Zeiss
Your partner for all things spectroscopy – With over 140 years of experience in the development and manufacture of spectrometers, ZEISS is internationally recognized for its optical quality and advanced engineering. We are renowned for having a high level of vertical integration, which allows us to provide tailored solutions for the widest variety of industries, including gratings and modules as well as complete spectrometer systems. From tackling tough conditions with Corona® extreme, providing reliability in complex production facilities with Corona® process, the portability and flexibility of AURA® handheld NIR and easy-to-use SensoLogic® chemometric software, we work as a partner providing the highest levels of technology and service.

EXHIBITION FLOOR PLAN

Booth	Company
KF01	KAX Group
KF02	HySpex by NEO
KF03	Bruker Optics
KF04	AB Vista NIR Services (Aunir)
KF05	PerkinElmer
KF06	Si-Ware Systems
KF07	NIR 2025
KF08	VIAVI Solutions
KF09	Senorics
KF10	ZEISS Spectroscopy
KF11	ABB AG
KF12	Metrohm
KF13	ITPHOTONICS
KF14	trinamiX GmbH




KF01
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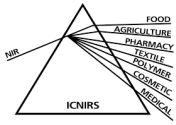
TRAVEL GRANTS

Travel Grants from ICNIRS were provided to the following NIR2023 participants.



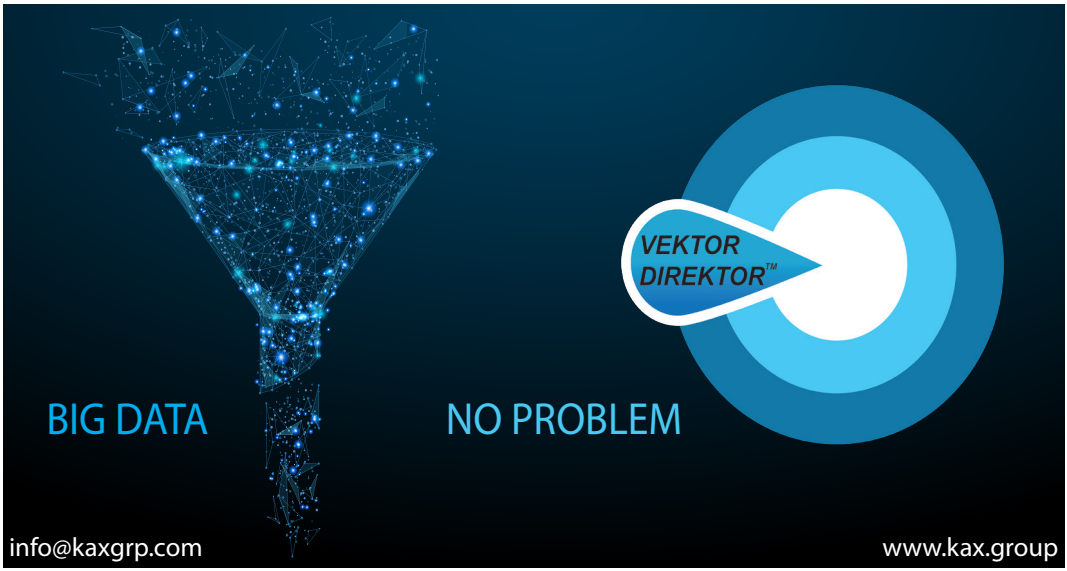
JOHN SHENK TRAVEL GRANT

Name	Affiliation	Area of interest
Miguel Vega-Castellote	University of Cordoba	Food Science
Alejandra Arroyo-Cerezo	University of Granada	Analytical Chemistry
Jose Antonio Diaz-Olivares	KU Leuven	Department of Biosystems
Jeremy Walsh	Central Queensland University	Institute for Future Farming Systems
Arnout van Nuenen	KU Leuven	Faculty of Engineering Technology
Rumbidzai T. Matenda	Stellenbosch University	Department of Food Science
María del Mar Garrido Cuevas	University of Cordoba	Faculty of Agricultural and Forestry Engineering
Mari van Wyk	Stellenbosch University	Department of Food Science
Mia Schutte	Stellenbosch University	Department of Food Science

EMERITUS TRAVEL GRANT

Name	Affiliation	Area of interest
Marek J. Wójcik	Jagiellonian University, Krakow	Faculty of Chemistry
Herbert Michael Heise	South-Westphalia University of Applied Sciences	Interdisciplinary Center for Life Sciences

Your Data **Our Software** **Your Success**



By KAX Group
Multivariate Analysis with Direction and Purpose

Multivariate Data Analysis Made Easy!
Visit us at stand KF01

VENUE

MAIN CONGRESS

NIR 2023 will be held at Congress Innsbruck starting with the Opening Session in the evening of Sunday, August 20, 2023.
The venue Congress Innsbruck is situated right at the city centre making it possible for visitors of congresses to enjoy a car-free stay.
The award-winning event venue offers a wide range of space and is geared to cater for individual requirements and wishes – from compact seminars to major congresses.

CONGRESS INNSBRUCK
Rennweg 3, 6020 Innsbruck
Austria
www.cmi.at

WORKSHOPS

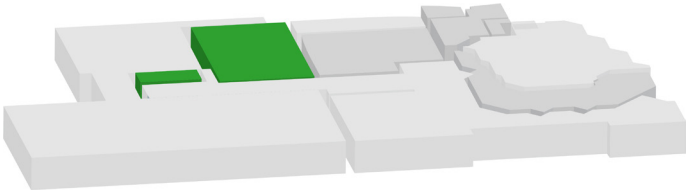
Associated Workshops will take place on Sunday, August 20, 2023 at Hotel Grauer Bär in Innsbruck.
This Location is within easy walking distance from Congress Innsbruck.

Hotel Grauer Bär
Universitätsstraße 5-7, 6020 Innsbruck
Austria

MAPS OF CONGRESS INNSBRUCK

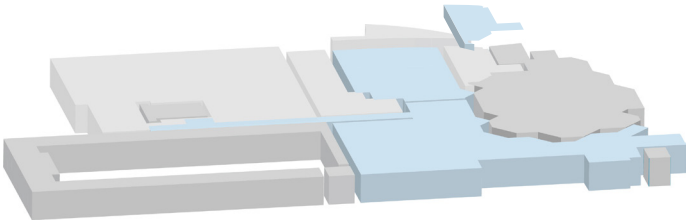
2ND FLOOR:

- Hall Innsbruck



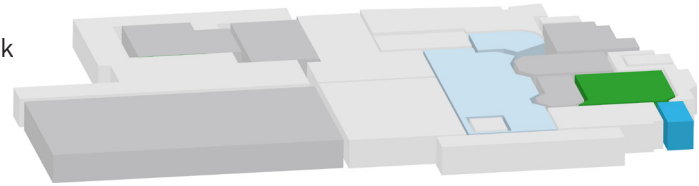
1ST FLOOR:

- Exhibition
- Catering
- Posters



GROUND FLOOR:

- Registration desk
- Cloakroom
- Media check
- Hall Brüssel



Main entrance
Rennweg

Hungerburgbahn
Hofgarten
Congress Innsbruck
Hötting
Inn
Innallee
Innstraße
Bundes-polizei-direktion
Kapuzinerg.
Kapuziner-kirche & -kloster
Metropolkino
Herrengasse
Dom St. Jakob
Rennweg
Europaparats-Promenade
Landes-theater
Hofburg
MCI
Stadtarchiv
Goldenes Dachl / Golden Roof
Grauer Bär
Höttingergass
Helbling-haus
Hofkirche
Alte Universität
Jesuitenkirche und -kolleg
Synagoge
Hofgasse
Stadtturm
Volkskunst-museum
Mariahilferstraß
Galerie
Rieseng.
Altstadt / Old Town
Volksgarten
Sillgasse
Klara-Pölt-Weg
Seiler-gasse
Kiebachgasse
Stiftsgasse
Burggraben
Treibhaus
Konservatorium
Landesmuseum Ferdinandeum
Musikschule Raiffeisensaal
Schlossergasse
Marktgraben
Museumstraße
Markt Halle
Terminal
Spitalkirche
Innenstadt / City Centre
Innrain
Maria-Theresien-Straße
Sparkassen-platz
Fotoforum Kellertheater
Annasäule
Kaufhaus TYROL
Meinhardstraße
Brunecker Straße
Johannes-kirche
Rathaus-galerien
Rudolfs-brunnen
Wilhelm-Greil-Straße
Brixner Straße
Bürgerstraße
Anichstraße
Meraner Straße
Altes-Neues-Landhaus
Bozner-platz
Kunstraum Innsbruck
Leokino
Taxispalais
Adamgasse
Südtiroler Platz
Fallmerayerstraße
Servitenkirche & -kloster
Freiheits-denkmal
Audioversum
Kaiser-Josef-Str.
Triumph-pforte
Salurner Straße
Haupt-bahn-hof
Casino
Technische Universität
A12 Bregenz
EXIT Kranebitten/Völs
Flughafen Innsbruck / Innsbruck airport
Universitäts-sportstätten
EXIT Innsbruck West


congress messe INNSBRUCK
Nordkettenbahnen
Station Hungerburg
Hungerburgbahn
Station Alpenzoo
Villa Blanka
Inn
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Hauptbahnhof
Olympia-world
Stadion
Westbahnhof
Stubaitalbhf.
EXIT Innsbruck Mitte
Knoten Innsbruck
Bergisel-Stadion
EXIT Innsbruck Süd
Lanser See

REGISTRATION INFORMATION

REGISTRATION OPENING HOURS

CONGRESS INNSBRUCK

The NIR2023 registration desk is located close to the main entrance of Congress Innsbruck at the ground level (Europa Foyer). Opening hours are as follows:

Sunday, August 20	**07:30 - 09:00** **11:30 - 13:00** **15:00 - 18:30**
Monday, August 21	**07:30 - 17:00**
Tuesday, August 22	**07:30 - 17:30**
Wednesday, August 23	**07:30 - 19:00**
Thursday, August 24	**08:00 - 13:00**

Please note that the workshops on Sunday will not take place at Congress Innsbruck. It is only a 5 minute walk to the location Hotel Grauer Bär. Please pick up your name badge directly at the Congress Innsbruck. There will be no registration desk at the Hotel Grauer Bär.

GENERAL TERMS AND CONDITIONS CMI

Please note that the general terms and conditions of CMI must be observed for participation in the congress. For further information please see: General Terms and Conditions CMI on www.cmi.at

CANCELLATION POLICY

For detailed information regarding the NIR 2023 registration cancellation policy, please refer to our website:
www.nir2023.at (Registration – Registration Guidelines).

REGISTRATION FEES AND DEADLINES

FULL REGISTRATION	On-site fee
ICNIRS | ASAC | GÖCH Member	€1.000,-
Resident of Developing Country	€790,-
Full-time Student	€390,-
Post Doctoral Student	€510,-
Non-Member	€1.100,-
Workshops	€100,- (each)
DAY TICKETS	
Day Ticket Monday	€350,-
Day Ticket Tuesday	€350,-
Day Ticket Wednesday	€350,-
TWO-DAYS TICKETS	
Day Ticket Monday & Tuesday	€650,-
Day Ticket Tuesday & Wednesday	€650,-

Conference registration fee includes:
- Participation in sessions
- Conference material
- Coffee breaks and lunches
- Get-Together, Sunday, August 20

Conference registration fee does not include:
- Conference Dinner, Wednesday, August 23
- Workshops
- Accommodation

WORKSHOPS

Satellite workshops will be held at the Hotel Grauer Bär.
The registration fee for each workshop is EUR 100,00. The fee includes coffee breaks. Please note that it is only a 5 minute walk from the Congress Innsbruck to the workshop location Hotel Grauer Bär. Please pick up your name badge directly at the Congress Innsbruck. There will be no registration desk at the Hotel Grauer Bär.

PERSONAL DATA

The participant is entitled to revoke his/her consent to the specific data processing at any time by writing to the congress secretariat:
nir23@cmi.at.

LOST BADGE

Lost badge may be replaced onsite. A handling fee of EUR 50,00 will be charged.

FILMING AND PHOTOGRAPHY

We would like to inform you that there may be filming and photography during the meeting. A photo gallery with all photos taken during the congress may be available to registered participants on the NIR2023 website. In addition, photographs taken during the congress may be used for the organiser´s social media networks.

MODIFICATION OF THE PROGRAMME

The conference chairmen reserve the right to modify the conference programme, which is published as an indication only.

DATA PRIVACY

We take your privacy very seriously and in order to comply with GDPR consent requirements, your consent to our Privacy Policy is mandatory for a participation.
For detailed GDPR guidelines please see:
www.nir2023.at – Participants - Registration - Registration guidelines.

GENERAL INFORMATION FROM A-Z

ABOUT AUSTRIA

Austria has been a member of the European Union since 1995, the population is 8,5 million, the capital city being Vienna (Wien). Politically, Austria is a democratic republic with the prime minister as the head of the government and parliamentary elections every five years. The formal head of state is the president, who has more representative duties than political power. The country is divided into nine federal states, Innsbruck is the capital of the state of the Tyrol. The language spoken in Austria is German, but most Austrians speak English and many speak some French or Italian too and are happy to be of service to visitors.

ABOUT INNSBRUCK

Innsbruck, the capital of the Tyrol, is located in the Alpine region of Austria, in the valley of the river Inn, at 580 metres above sea level. It is surrounded by mountain ranges and numerous peaks which reach an altitude of approx. 2,700 metres above sea level. The city has 121,000 inhabitants and hosts one of the oldest universities in Europe, founded in the year 1669. Today, over 30,000 students attend the university in Innsbruck. Due to its location, Innsbruck has an excellent tourist infrastructure and is best known for its rich cultural heritage, as well as for its endless opportunities in sports and recreation. Innsbruck has been the host for Olympic Winter Games twice, in 1964 and 1976. In the town, some 160 restaurants, cafes and bars, most of them in walking distance to the convention centre, offer traditional Tyrolean and Austrian specialities as well as international dishes.

ABSTRACTS

Abstracts selected for NIR2023 are presented in Concurrent Sessions, Flash Talk Sessions and Poster Sessions. All accepted and confirmed abstracts are available via the Book of Abstracts online.

AM AND PM NETWORKING BREAKS

During the conference week, complimentary light snacks and refreshments will be available for registered delegates in the exhibition and poster area.

APP

A conference app is available for NIR2023 in Innsbruck. This app contains a variety of useful information, agendas, messaging and notifications.
It's easy to download and install by searching for EventsAir in your Android or Apple App Store.

Then all you need to do is:

1. Install The Event App by **EventsAir.**
2. The first time you open the app, enter this event code: **NIR2023**
3. When your app opens, enter your email address and 6-digit **App PIN**. You can find your App PIN on your Name Badge.

CAMERAS AND CELL PHONES

No unauthorised recording is allowed in any event during the NIR2023. As a courtesy to fellow attendees, please set your cell phones on silent mode during the session.

CERTIFICATE OF ATTENDANCE

A certificate of attendance will be sent to all delegates by email after the congress.

CITY TRANSPORTATION AND TAXI

There is a good public transport system in Innsbruck and its surroundings. Most busses and trams operate until midnight. Detailed information on bus schedules is available at your hotel. Tickets can be pre-purchased form ticket machines at the stops.
Taxis are usually available outside the conference centre's entrance. If you need support please contact the registration desk.

CONGRESS DOCUMENTS AND BADGES

Congress documents have to be collected on-site at the registration desk. Name badges must be worn visibly at all times during the conference, networking activities and in the exhibition and poster area.

ELECTRICITY

Electric in Austria is without exception AC 230V / 50 Hz. Sockets only fit round two-pin plugs (use of adapter necessary for all devices).

EMERGENCY

The emergency numbers can be called free of charge from any phone in Austria. In the event of traffic accidents, fire or other situations, emergency services should be contacted immediately on the European emergency number: 112.
The police can be contacted by calling 133 and fire department by 122. For an ambulance service please call 144.

INFORMATION FOR SPEAKERS

Please bring your lecture on a USB stick and hand it in at the media check (located next to the registration desk on the ground floor of Congress Innsbruck). Please make sure you do this at least two hours before your session begins. You are also welcome to drop off your presentation at the media check the day before. You need not bring your own computer. The meeting rooms are equipped with PC and data projector.

LOST & FOUND

Lost and Found items should be returned/claimed at the registration desk.

OFFICIAL LANGUAGE

The official language of the NIR2023 is English. No simultaneous translation will be provided.

PARKING

There is an underground car park at the Congress Centre. Participants obtain tickets at reduced rates from the porter's desk on the ground floor of Congress Innsbruck. Please note that theses reduced fares only apply to the Congress garage (garage entry on the left side) and not the other parking facilities (garage entry on the right side). Please also note that street parking in the city is available but limited to 90 minutes.

RESTAURANTS & BARS

There are plenty of restaurants and bars in the inner-city of Innsbruck.
For dining options please refer to: innsbruck.info/en/see-and-experience/food-and-drink/restaurant-search

SMOKING

It is against the law to smoke in any indoor public place or worksite in Austria. Smoking is prohibited in the entire building of Congress Innsbruck. Please note that public transport, transit shelters, taxis and work vehicles are also smokefree.

TRAIN STATION

Innsbruck main station is located in the centre of the city within walking distance to the conference venue. Taxis are also available outside the station's entrance.

WATER

The value of water is particularly evident in Innsbruck, because 100% of Innsbruck's water needs are met by spring water, the quality of which is constantly monitored.
The journey of Innsbruck's water begins at the very top of the Nordkette, where water from melted snow or precipitation seeps deep into the rock and then makes its long way down into the valley. This special geological situation determines the high quality of Innsbruck's drinking water.

WI-FI CONNECTION

NIR2023 is providing free Wi-Fi in the conference area. To ensure a positive Wi-Fi experience for all users please do not use your own wireless hotspot device.
The additional Wi-Fi devices create significant RF interference which can interfere with all Wi-Fi networks. Please turn these devices off and connect to the Wi-Fi network congress and open your web browser to connect to the internet.

LOG IN DETAILS:

Network name:	congress
User name:	NIR2023
Password:	NIR2023

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The play of jurisdiction shall be Innsbruck.

SOCIAL EVENTS

GET-TOGETHER

Sunday, August 20, 2023 at 18:30 - 20:30
Venue: Kristall Foyer, Congress Innsbruck, Rennweg 3, 6020 Innsbruck

Sponsored by Phytovalley Tirol and its partners Bionorica and ADSI

CONFERENCE DINNER

Wednesday, August 23, 2023 at 19:00 - 23:00
Ticket costs: EUR 30,00 per ticket, tickets are limited
Venue: Hall Dogana, Congress Innsbruck, Rennweg 3, 6020 Innsbruck

TIMETABLE

SUNDAY, AUGUST 20, 2023

Location: Hotel Grauer Bär

	Room 1	Room 2	Room 3
09:00 - 12:00	Workshop 1 **Dolores Perèz-Marin**	Workshop 2 **Tom Fearn**	Workshop 3 **José Manuel Amigo**
12:00 - 13:00	Break		
13:00 - 16:00	Workshop 4 **Heinz Wilhelm Siesler & Hui Yan**	Workshop 5 **Rudolf & Waltraud Kessler**	Workshop 6 **Krzysztof Bec & Justyna Grabska**

Location: Congress Innsbruck

	Hall Innsbruck
17:00 - 18:30	**Opening Session** Welcome to the Country **Christian Huck, Wolfgang Lindner, Günther K. Bonn, Cornelia Hagele & Georg Willi** Plenary Lecture 1 **Gerhard Litscher** Plenary Lecture 2 **Boris Mizaikoff**
18:30 - 20:30	Get-Together Kristall Foyer

MONDAY, AUGUST 21, 2023

	Location: Congress Innsbruck	
	Hall Innsbruck	Hall Brüssel
8:30 - 10:10	**Plenary Session I** Conference welcome and introduction **Christian Huck, Veronika Sexl & Søren Balling Engelsen** Karl Norris Award **Harald Martens** Plenary Lecture 3 **Heinz Wilhelm Siesler**	
10:10 - 10:35	Coffee Break and Exhibition Kristall Foyer	
10:35 - 12:00	**Morning Session A** Water, Soil and Environment Keynote 1 **Roumiana Tsenkova**	**Morning Session B** Future Trends Keynote 2 **Bernhard Lendl**
12:00 - 12:30	Special Industry Address **Michael Popp**	
12:30 - 13:05	Lunch Break Kristall Foyer	
12:45 - 13:30		ABB Vendor Seminar
13:05 - 14:30	Poster Session I and Exhibition	
14:30 - 16:25	**Afternoon Session A** Chemometrics I Keynote 3 **Tom Fearn**	**Afternoon Session B** Agriculture, Dairy and Food I Keynote 4 **Dolores Perèz-Marin**
16:25 - 16:40	Snack Break and Exhibition Kristall Foyer	
16:40 - 17:30	Advancing NIR Spectroscopy **Heinz Wilhelm Siesler, Rudolf Kessler & Tom Fearn**	

TUESDAY, AUGUST 22, 2023

	Location: Congress Innsbruck	
	Hall Innsbruck	Hall Brüssel
8:30 - 09:40	**Plenary Session II** Tomas Hirschfeld Award 2022 **Wouter Saeys** Plenary Lecture 4 **Søren Balling Engelsen**	
09:40 - 10:05	Coffee Break and Exhibition Kristall Foyer	
10:05 - 12:00	**Morning Session A** Fundamentals and Instrumentation I Keynote 5 **Moon Kim**	**Morning Session B** PAT/Industrial Keynote 6 **Rudolf Kessler**
12:00 - 12:35	Lunch Break Kristall Foyer	
12:30 - 13:15		trinamiX Vendor Seminar trinamiX
12:35 - 14:00	Poster Session II and Exhibition	
14:00 - 15:55	**Afternoon Session A** Hyperspectral Imaging I Keynote 7 **Jose Manuel Amigo**	**Afternoon Session B** Agriculture, Dairy and Food II Keynote 8 **Zoltán Kovács**
15:55 - 16:10	Snack Break and Exhibition Kristall Foyer	
16:10 - 17:15		Flash Talks
17:15 - 18:45		ICNIRS General assembly

WEDNESDAY, AUGUST 23, 2023

	Location: Congress Innsbruck	
	Hall Innsbruck	Hall Brüssel
08:30 - 09:40	**Plenary Session III** Tomas Hirschfeld Award 2023 **Roger Meder** Plenary Lecture 5 **Marena Manley**	
09:40 - 10:05	Coffee Break and Exhibition Kristall Foyer	
10:05 - 12:00	**Morning Session A** Agriculture, Dairy and Food III Keynote 9 **Longhai Guo**	**Morning Session B** Impacts in Pharma, Diagnostics and Biotechnology Keynote 10 **Bayden Wood** (Chemistry Europe Lecturer)
12:00 - 12:35	Lunch Break Kristall Foyer	
12:35 - 14:00	Poster Session III and Exhibition	
14:00 - 15:55	**Afternoon Session A** Hyperspectral Imaging II Keynote 11 **Aoife Gowen**	**Afternoon Session B** Fundamentals and Instrumentation II Keynote 12 **Tom Scherzer**
15:55 - 16:10	Snack Break and Exhibition Kristall Foyer	
16:10 - 17:25		Flash Talks
19:00 - 23:00	Conference Dinner Hall Dogana	

THURSDAY, AUGUST 24, 2023

	Location: Congress Innsbruck	
	Hall Innsbruck	Hall Brüssel
09:00 - 10:55	**Session A** Chemometrics II Keynote 13 **Satoru Tsuchikawa**	**Session B** Agriculture, Dairy and Food IV Keynote 14 **Stefan Schönbichler**
10:55 - 11:30	Coffee and Snack Break Kristall Foyer	
11:30 - 12:30	**Closing Plenary Session** Plenary Lecture 6 **Yukihiro Ozaki** Plenary Lecture 7 **Federico Marini**	
12:30 - 13:00	Poster Awards	
13:00 - 13:30	Conference Closing	

SCIENTIFIC PROGRAMME
SUNDAY, AUGUST 20, 2023

Location Hotel Grauer Bär
Universitätsstraße 5 – 7, 6020 Innsbruck

09:00 - 12:00 Sunday Pre-Conference Morning Workshops

Workshop 1: NIRS for Quality Control and Authentication including on-site analysis
Dolores Perèz-Marin, University of Cordoba, Spain

Workshop 2: Chemometrics for NIR Spectroscopy
Tom Fearn, University College London, United Kingdom

Workshop 3: Classic and newest topics in Hyperspectral Image Analysis
José Manuel Amigo, University of the Basque Country, Spain

13:00 - 16:00 Sunday Pre-Conference Afternoon Workshops

Workshop 4: Handheld Near-Infrared Spectroscopy: State-of-the-Art Instrumentation and Applications in Material Identification, Food Authentication and Environmental Investigations
Heinz Wilhelm Siesler, University of Duisburg-Essen, Germany
Hui Yan, Jiangsu University of Science and Technology, China

Workshop 5: How to choose the most suitable spectroscopic PAT technique: performance, pitfalls and best practice
Rudolf Kessler, Reutlingen University and Kessler ProData GmbH, Germany
Waltraud Kessler, Reutlingen University and Kessler ProData GmbH, Germany

Workshop 6: Complex world of overtone and combination bands made accessible - A beginner's guide to interpretation of NIR spectra
Krzysztof Bec, University of Innsbruck, Austria
Justyna Grabska, University of Innsbruck, Austria

Location Congress Innsbruck

17:00 - 18:30 **Opening Session** — **Hall Innsbruck**
Chair: Christian Huck

17:00 - 17:30 **Welcome to the Country**
Christian Huck on behalf of NIR 2023
Wolfgang Lindner on behalf of ASAC
Günther K. Bonn on behalf of Phytovalley Tirol
Cornelia Hagele on behalf of the country Tyrol
Georg Willi on behalf of the city of Innsbruck

17:30 - 18:00 **Plenary Lecture 1**
PL01 Near Infrared Spectroscopy
Explores Mysteries of Ancient and Modern Medicine
Gerhard Litscher, Medical University of Graz, Austria

18:00 - 18:30 **Plenary Lecture 2**
PL02 Good Vibrations in the Gas Phase - From NIR to MIR
Boris Mizaikoff, University of Ulm, Germany

Performance by Tyrolean Schuhplattler Dancers

18:30 - 20:30 **Get-Together**

Sponsored by Phytovalley Tirol and its partners Bionorica and ADSI

MONDAY, AUGUST 21, 2023
Location Congress Innsbruck

08:30 - 10:10	**Plenary Session I** **Chair: Roger Meder**	**Hall Innsbruck**

08:30 - 09:00
Conference welcome and introduction
Christian Huck (NIR 2023 Chair)
Veronika Sexl (Rector of the University of Innsbruck)
Søren Balling Engelsen (ICNIRS president)

09:00 - 09:40
AW01
Karl Norris Award
Hybrid subspace modelling- linking multivariate regression and Explainable AI
Harald Martens, Norwegian University of Science and Technology NTNU, Norway

09:40 - 10:10
PL03
Plenary Lecture 3
Near-Infrared Spectroscopy: A "Restless" Analytical Technique for a Multiplicity of Applications
Heinz Wilhelm Siesler, University of Duisburg-Essen, Germany

10:10 - 10:35 Coffee Break and Exhibition

10:35 - 12:30	**Morning Session A –** **Water, Soil and Environment** **Chair: Zoltán Kovács**	**Hall Innsbruck**

10:35 - 11:00
KN01
Keynote 1
NIRS - Aquaphotomics: New Integrative Science and Technology Platform
Roumiana Tsenkova, University of Kobe, Japan

11:00 - 11:15
O10.02
Recent Developments in Aquaphotomics: Insights into Water Structure and Functionality
Jelena Muncan, University of Kobe, Japan

11:15 - 11:30
O10.04
Water and its molecular conformations as qualifiers of aqueous systems
Aleksandar Stoilov, Yunosato Aquaphotomics Lab, Japan

11:30 - 11:45 O10.01
Metabolomic analysis of the global molecular fingerprint and aquaphotom-ic analysis of the dehydration-rehydration cycle of the symbiotic aeroterres-trial microalga Asterochloris erici
Myriam Catala, Rey Juan Carlos University, Spain

11:45 - 12:00 O10.05
Developing NIR-Aquaphotomics for rapid screening of respiratory disease in livestock
Carrie Vance, Mississippi State University, USA

12:00 - 12:30 PL08 **Special Industry Address – "NIRvolution"** **Hall Innsbruck**
Chair: Christian Huck
Michael Popp, Bionorica, Germany

10:35 - 12:00 **Morning Session B – Future Trends** **Hall Brüssel**
Chair: Satoru Tsuchikawa

10:35 - 11:00 KN02
Keynote 2
Introducing novel photothermal sensing strategies for the analysis of gases and liquids using NIR and MIR lasers
Bernhard Lendl, Technical University of Vienna, Austria

11:00 - 11:15 O06.03
Rapid on-site detection of explosives and their precursors by ultra-portable NIR technology
Anne-Flore Prior, University of Lausanne, Switzerland

11:15 - 11:30 O06.05
Development of a cost-effective prototype to monitor the must fermentation process: first tests in lab-scale
Alessio Tugnolo, Università degli Studi di Milano, Italy

11:30 - 11:45 O04.02
Quantitative analysis of BIC formation by NIR spectroscopy and chemometrics
Yusuke Morisawa, Kindai University, Japan

11:45 - 12:00 O06.02
NIR imaging for textile recycling
Mikko Mäkelä, VTT Technical Research Centre of Finland Ltd., Finland

12:30 - 13:05 Lunch Break

12:45 - 13:30 **ABB Vendor Seminar** **Hall Brüssel**

Presentation of FT-NIR technology (high level overview of the instruments lab+process portfolio, main features) and application examples from the various markets covering: refining, chemicals, pharmaceuticals, semiconductor, space and defence.

13:05 - 14:30 **Poster Session I and Exhibition** **Tirol Foyer**

Theme 01: Agriculture, Dairy and Food
P01.01, P01.03, P01.05, P01.07, P01.09, P01.11, P01.13, P01.15, P01.17, P01.19, P01.21, P01.23, P01.24, P01.25, P01.27, P01.29, P01.31, P01.33, P01.35, P01.37, P01.39, P01.41, P01.43, P01.47, P01.49, P01.51, P01.53, P01.55, P01.59, P01.61, P01.63, P01.65, P01.69, P01.71, P01.75, F01.01, F01.05, F01.07, F01.08

Theme 03: Chemometrics
P03.01, P03.03, P03.05, P03.07, P03.09, P03.10, P03.12, P03.13, P03.15, F03.01, F03.03, F03.05, F03.07

Theme 04 Consumables and Life-Style Products
P04.01, P04.02, P04.03

Theme 05: Fundamentals and Instrumentation
P05.01, P05.02, P05.03, P05.09, P05.04, P05.05, P05.06, P05.07, P05.08, F05.01, F05.02, F05.03

Theme 07: Hyperspectral Imaging
P07.01, P07.03, P07.05, P07.07, P07.09, P07.11, P07.13, P07.15, P07.17, P07.19, P07.23, F07.01, F07.03, F07.05

Theme 09: PAT/Industrial applications
P09.01, P09.02, P09.03, P09.04, P09.05, P09.06, P09.07, P09.08, P09.09, P09.10, P09.11, P09.12, P09.13, F09.01

14:30 - 16:25 Afternoon Session A – Chemometrics I — Hall Innsbruck
Chair: Manuel Jose Amigo

14:30 - 14:55 KN03
Keynote 3
Chemometrics is more than algorithms?
Tom Fearn, University College London, United Kingdom

14:55 - 15:10 O03.14
Gray Classical Least Squares: How far can it be pushed?
Barry Wise, Eigenvector Research Inc., USA

15:10 - 15:25 O03.10
Can hidden spurious correlations in prediction models for spectral data be tackled by causal discovery?
Quan Nguyen Minh, University of Tsukuba, Japan

15:25 - 15:40 O03.11
Partial least squares with multiple domains
Ramin Nikzad-Langerodi, Software Competence Center Hagenberg, Austria

15:40 - 15:55 O03.08
Development of a portable rapid and robust spectroscopic method to determine unknown marine plastics and their chemical additives using NIR spectroscopy
Adam Kolobaric, Rmit University, Australia

15:55 - 16:10 O03.05
Dow Polyols NIR Chemometric Model Reduction Based on Clustering –Reduce >30 Global Hydroxyl Models to < 5
Frederic Despagne, ABB, France

16:10 - 16:25 O03.09
Determination of the olive leaves suitability for biorefinery processing assisted with portable NIR spectrometers
Albert Kravos, University of Primorska, Slovenia

14:30 - 16:25 Afternoon Session B – Agriculture, Dairy and Food I — Hall Brüssel
Chair: Ana Garrido-Varo

14:30 - 14:55 KN04
Keynote 4
Main trends and opportunities in the use of new generation of near-infrared sensors for the control, authentication and monitoring of agrifood products and processes
Dolores Perez-Marin, University of Cordoba, Spain

14:55 - 15:10 O01.11
New concepts for quality evaluation of fresh produce in Japan
Akifumi Ikehata, National Agriculture and Food Research Organization, Japan

15:10 - 15:25 O01.15
Oxidative stability prediction in olive oil by near infrared spectroscopy: applications in olive breeding
Lorenzo León, IFAPA Centro Alameda del Obispo, Spain

15:25 - 15:40 O01.06
Use of handheld NIR spectroscopy to quantify and classify nutritional parameters in pasta using PLS, LW-PLS and PLS-DA
Marina De Gea Neves, University of Duisburg-Essen, Germany

15:40 - 15:55 O01.08
NIR spectroscopy and chemometrics against food fraud: spotting Mechanically Separated Meat (MSM) in processed meat products
Alessandro Giraudo, Polytechnic of Turin, Italy

15:55 - 16:10 O01.04
Predictions accuracy of nutrients is greatly reduced in wet feed and forages
Paolo Berzaghi, University of Padua, Italy

16:10 - 16:25 O01.14
Near infrared spectroscopy guide apple puree formulation: an innovative strategy to develop anticipated and constant products
Weijie Lan, Nanjing Agricultural University, China

16:25 - 16:40 Snack Break and Exhibition

16:40 – 17:30 **Advancing NIR Spectroscopy - A Moderated Community Discussion on Challenges and Needs** **Hall Innsbruck**

Moderators:
Heinz Wilhelm Siesler, University of Duisburg-Essen, Germany
Rudolf Kessler, Reutlingen University and Kessler Pro-Data GmbH, Germany
Tom Fearn, University College London, United Kingdom

TUESDAY, AUGUST 22, 2023
Location Congress Innsbruck

08:30 - 09:40 | **Plenary Session II** | **Hall Innsbruck**
Chair: Marena Manley

08:30 - 09:10 AW02
Tomas Hirschfeld Award 2022
Dealing with Light Scattering in NIR Spectroscopy: Remove or Exploit?
Wouter Saeys, KU Leuven, Belgium

09:10 - 09:40 PL04
Plenary Lecture 4
NIRS: the green analytical choice for future sustainable food production
Søren Balling Engelsen, University of Copenhagen, Denmark

09:40 - 10:05 Coffee Break and Exhibition

10:05 - 12:00 | **Morning Session A – Fundamentals and Instrumentation I** | **Hall Innsbruck**
Chair: Bayden Wood

10:05 - 10:30 KN05
Keynote 5
Advancement of hyperspectral imaging and future trends for food safety and quality applications
Moon Kim, United States Department of Agriculture, ARS, USA

10:30 - 10:45 O05.02
Beyond the black box: Unlocking molecular fingerprints and enhancing chemometric models with NIR spectra simulation
Krzysztof Bec, University of Innsbruck, Austria

10:45 - 11:00 O03.12
Water as a near-infrared spectral probe for chemical processes
Xueguang Shao, Nankai University, China

11:00 - 11:15 O05.07
Curing Process of Epoxy Resin Explored by NIR and MIR PCMW2D Correlation Spectroscopy
Shigeaki Morita, Osaka Electro-Communication University, Japan

11:15 - 11:30 O05.01
MEMS FT-NIR Diffuse-Reflectance Spectral Repeatability of Spatially-Scanned Heterogeneous Samples
Yasser Aboelmagd, Si-Ware Systems, Egypt

11:30 - 11:45 O05.03
Potential of the prediction of absorption and scattering coefficients of a turbid medium by combining a polarized speckle measurement with a chemometric analysis
Ryad Bendoula, INRAE, France

11:45 - 12:00 O09.04
Quality assurance in glue-laminated timber production assisted with near infrared spectroscopy
Jakub Sandak, InnoRenew CoE, Slovenia

10:05 - 12:00 Morning Session B – PAT/Industrial — Hall Brüssel

Chair: Longhai Guo

10:05 - 10:30 KN06
Keynote 6
Elastic and Inelastic Light Scattering Spectroscopy: The Hidden Champion PAT Applications
Rudolf Kessler, Reutlingen University and Kessler ProData GmbH, Germany

10:30 - 10:45 O06.04
Towards Standardisation of Software Platforms used for Near Infrared and Other PAT Instrumentation
Brad Swarbrick, KAX Group, Australia

10:45 - 11:00 O09.01
The sampling interface: a critical success factor in process sampling and PAT
David Honigs, PerkinElmer, United States

11:00 - 11:15 O09.02
Development of a Cost-Effective Near-Infrared Sensor for Inline Moisture Monitoring for Enhanced Drying (EDDY) processes
Sebastian Friedl, Research Center for Non-destructive Testing GmbH, Austria

11:15 - 11:30 O06.01
Fast and flexible spectral and hyperspectral chemical analysis through digital NIR spectroscopy
Markus Brandstetter, RECENDT - Research Center for Non-Destructive Testing, Austria

11:30 - 11:45 O09.03
Near-infrared spectroscopy for the monitoring of continuous flow synthesis of Grignard reagents
Alexis Rousseaux, Chemium, Belgium

11:45 - 12:00 O09.05
Implementation of Dynamic and Static Moisture Control in Fluidized Bed Granulation
Liang Zhong, Shandong University, China

12:00 - 12:35 Lunch Break

12:30 - 13:15 trinamiX Vendor Seminar trinamiX **Hall Brüssel**

The Future of Portable NIR Spectroscopy: Complementing lab analytics with on-the-spot insights for enhanced decision making

For decades, lab analysis carried out by benchtop NIR spectrometers has formed an essential pillar when it comes to quality management. Proven to be a fast and reliable method for material classification and sample quantification, NIR spectroscopy has been creating value across many industries.

Recently, technological advancements around the miniaturization of NIR spectroscopy have paved the way for a new generation of handheld spectrometers that are becoming more accurate, robust, and reliable. Paired with an intuitive handling and affordable entry into lab analytics, handheld solutions have broken with the paradigm that NIR spectroscopy is bound to the lab environment.

Looking at the agricultural industry, the speaker will showcase how benchtop solutions are now complemented by handheld spectrometers in the field. The speaker will then elaborate on how their co-existence will prove beneficial to customers and partners who will be able to leverage the strengths of both setups going forward. Finally, the speaker will outline how the flexibility of handheld solutions opens up new potentials in data collection and model creation to leverage NIRS in industries that have not been exposed to the method.

12:35 - 14:00 Poster Session II and Exhibition Tirol Foyer

Theme 01: Agriculture, Dairy and Food
P01.02, P01.04, P01.06, P01.08, P01.10, P01.12, P01.14, P01.16, P01.18, P01.20, P01.22, P01.26, P01.28, P01.30, P01.32, P01.34, P01.36, P01.38, P01.40, P01.42, P01.44, P01.48, P01.50, P01.52, P01.54, P01.56, P01.58, P01.60, P01.62, P01.64, P01.66, P01.68, P01.70, P01.72, P01.73, P01.74, P01.76, F01.02, F01.03, F01.04, F01.06

Theme 02: Allergenics/Traditional medicine
P02.01

Theme 03: Chemometrics
P03.02, P03.04, P03.06, P03.08, P03.14, P03.16, P03.17, P03.18, F03.02, F03.04, F03.06

Theme 06: Future Trends
P06.01, P06.03, P06.04, P06.05, P06.06

Theme 07: Hyperspectral Imaging
P07.02, P07.06, P07.08, P07.10, P07.12, P07.16, P07.18, P07.20, P07.22, F07.02, F07.04

Theme 08: Impacts in Pharma, Diagnostics and Biotechnology
P08.01, P08.02, P08.04, P08.06, P08.07, P08.08, P08.09, P08.10, P08.11, F08.01

Theme 10: Water, Soil and Environment
P10.01, P10.02, P10.03, P10.04, P10.05, P10.06, P10.07, P10.08, P10.09, P10.10

14:00 - 15:55	Afternoon Session A – Hyperspectral Imaging I Chair: Dolores Perez-Marin	Hall Innsbruck

14:00 - 14:25 KN07
Keynote 7
Subsampling, sampling, oversampling? NIR or HSI-NIR?
Jose Manuel Amigo, University of Basque Country, Spain

14:25 - 14:40 O07.10
A novel new approach to standardised portable multimodal hyperspectral imaging: All-in-One hyperspectral imaging
Puneet Mishra, Wageninen University and Research, Netherlands

14:40 - 14:55 O07.13
Enhancing poultry meat safety: Real-time foreign material detection through high-performance deep learning-enabled NIR hyperspectral imaging
Seung-Chul Yoon, USDA - Agricultural Research Service, USA

14:55 - 15:10 O07.03
Application of near-infrared hyperspectral imaging and chemometrics in the evaluation of different rice varieties
Elena Cazzaniga, Politecnico Di Torino, Italy

15:10 - 15:25 O07.07
Shining hyperspectral light on agricultural products: an application story from strawberry
Na Liu, Norsk Elektro Optikk AS, Norway

15:25 - 15:40 O07.05
Measurement of paper, coloured materials, and lamination films using a Fourier-type near-infrared hyperspectral imaging system
Shigeru Sugawara, National Research Institute of Police Science in Japan, Japan

15:40 - 15:55 O07.08
Experimental study and modeling of moisture transport in wood by means of near-infrared hyperspectral imaging coupled with a mass transfer simulation method
Te Ma, Nagoya University, Japan

14:00 - 15:55 Afternoon Session B – Agriculture, Dairy and Food II — Hall Brüssel

Chair: Roumiana Tsenkova

14:00 - 14:25 KN08
Keynote 8
Recent Results of Near Infrared Spectroscopy on the Way "From Farm to Fork" or Even Further
Zoltán Kovács, Hungarian University of Agriculture and Life Sciences, Hungary

14:25 - 14:40 O01.01
Contribution of NIRS techniques to assess the presence in feed of authorised and non-authorised insect meal
Vincent Baeten, Walloon Agricultural Research Centre, Belgium

14:40 - 14:55 O01.09
NIR spectroscopy to fight vinegar adulteration
Silvia Grassi, Università degli Studi di Milano, Italy

14:55 - 15:10 O01.10
Rapid Non-destructive Prediction of Oil, Protein, and Weight in Single Pea and Soybean Using Single Kernel Near Infrared (SKNIR) Spectroscopy
Gokhan Hacisalihoglu, Florida A & M University, USA

15:10 - 15:25 O01.19
On-farm NIR sensor for milk quality analysis: bias correction with unsupervised techniques and bulk milk analysis
Arnout van Nuenen, KU Leuven, Belgium

15:25 - 15:40 O01.16
Nondestructive Estimation of Green Vegetable Freshness with Science-Based NIR Spectroscopy
Xinyue Li, National Agriculture and Food Research Organization, Japan

15:40 - 15:55 O01.13
NIR infrared spectroscopy to measure the extent of thermal treatment of meat analogues: from protein gel to high moisture extrudate
Nienke Köllmann, Wageningen University, Netherlands

15:55 - 16:10 Snack Break and Exhibition
kindly supported by

16:10 - 17:15 **Flash Talks** **Hall Brüssel**
Chairs: Jelena Muncan and Jakub Sandak

F01.01 Near Infrared Spectroscopy for monitoring the nutritional and microbial quality of Black soldier fly larvae (BSFL)
Shanmugam Alagappan, University of Queensland, Australia

F01.012 NIR spectroscopy towards green transition
Tomasz Czaja, University of Copenhagen, Denmark

F01.03 Rapid Determination of Nutmeg Shell Content in Ground Nutmeg using FT-NIR Spectroscopy and Machine Learning
Alissa Drees, University of Hamburg, Germany

F01.04 Near-Infrared Spectroscopy for Mycotoxin Screening in Food Crops: Current State-of-the-Art and Challenges
Stephan Freitag, University of Natural Resources and Life Sciences, Austria

F01.05 Application of deep learning and near infrared spectroscopy for assessment of quality for Assam CTC tea
Ajanto Hazarika, Tocklai Tea Research Institute, India

F01.06 Study on Black Spot Disease Detection and Visualization on Winter Jujubes Using Hyperspectral Imaging System
Weijie Lan, Nanjing Agricultural University, China

F01.07 The use of Near Infrared Spectroscopy for the analysis of Fumonisin B1 dissolved in water and methanolf
Paul J. Williams, Stellenbosch University, South Africa

F01.08 Classification of tapioca starch hydrolysis products based on their Brix and Dextrose values using NIRS in transflectance mode
Chayanid Sringarm, Naresuan University, Thailand

F05.01 Bloodstains dating by means of NIR and UV-Vis spectroscopy – a critical comparison
Sara Gariglio, University of Genova, Italy

F05.02 Nonlinear concentration-dependent scattering coefficient with a colloidal solution and its origin
Goro Nishimura, Hokkaido University, Japan

F05.03 Tailoring Spectral Sensors for Specific Applications
Don van Elst, Eindhoven University of Technology, Netherlands

F08.01 Near-infrared spectroscopy (NIRS) as a screening tool for lethal chytrid fungus (Batrachochytrium salamandrivorans) in eastern newts (Notopthalamus viridescens)
Li-Dunn Chen, Mississippi State University, United States

F09.01 Rapid end-point determination of the extraction processes by near-infrared spectroscopy
Lele Gao, Shandong University, China

17:15 - 18:45 **ICNIRS General assembly** **Hall Brüssel**

WEDNESDAY, AUGUST 23, 2023
Location Congress Innsbruck

08:30 - 09:40	Plenary Session III Chair: Federico Marini	Hall Innsbruck
08:30 - 09:10 AW03	**Tomas Hirschfeld Award 2023** A career in NXR spectroscopy: X = I,M **Roger Meder**, Ridley Agriproducts / Meder Consulting / University of the Sunshine Coast, Australia	
09:10 - 09:40 PL05	**Plenary Lecture 5** Analysis of cereal quality using NIR spectroscopy - a journey that began on 1st August 1975 **Marena Manley**, Stellenbosch University, South Africa	
09:40 - 10:05	Coffee Break and Exhibition	
10:05 - 12:00	**Morning Session A – Agriculture, Dairy and Food III** **Chair: Celio Pasquini**	**Hall Innsbruck**
10:05 - 10:30 KN09	**Keynote 9** - Control of Polymerization Process and Study on Polymer Structure Using NIR & IR **Longhai Guo**, Beijing University, China	
10:30 - 10:45 O01.20	Approaching authenticity issues in processed meat products with hyperspectral imaging **Paul J. Williams**, Stellenbosch University, South Africa	
10:45 - 11:00 O01.18	Depth-resolved optical properties of wet aged meat and their potential for quality evaluation **David Tjandra Nugraha**, KU Leuven, Belgium	
11:00 - 11:15 O01.07	Development of NIR calibration for prediction of amino acids in animal by-products **Rocio Dona Garcia**, Ab Vista, United Kingdom	
11:15 - 11:30 O07.12	Hyperspectral imaging as a high-throughput method for monitoring fungal colonization on building materials **Anna Sandak**, InnoRenew CoE, Slovenia	

11:30 - 11:45
O01.05
Monitoring raw material variation in industrial enzymatic protein hydrolysis using near infrared spectroscopy
Katinka Dankel, Nofima - The Norwegian Institute of Food, Fisheries and Aquaculture Research, Norway

11:45 - 12:00
O01.17
Exploratory study of the evolution of béchamel sauces during cooking: use of NIRS coupled with MCR-ALS analysis
Sonia Nieto Ortega, AZTI, Spain

10:05 - 12:00 **Morning Session B – Impacts in Pharma, Diagnostics and Biotechnology** **Hall Brüssel**
Chair: Aoife Gowen

10:05 - 10:30
KN10
Chemistry Europe Lecturer
Keynote 10
Point-of-care applications of near-infrared spectroscopy in clinical medicine
Bayden Wood, Monash University, Australia

10:30 - 10:45
O08.01
Near-infrared analysis of bile juice for identification of gall bladder cancer
Hoeil Chung, Hanyang University, South Korea

10:45 - 11:00
O08.02
Ensuring good analytical sampling of pharmaceutical blends by NIR fiber optic probes inserted into moving powder beds
Stephen Hammond, Expo Pharma Engineering Services, Ireland

11:00 - 11:15
O08.03
Development of Skin Phantoms for Improvement of a noninvasive Blood Glucose Assay using diffuse Reflection NIR-Spectroscopy
Herbert Michael Heise, South-Westphalia University of Applied Sciences, Germany

11:15 - 11:30
O08.04
NIR-signal enhanced biosensing with sensitive silicon detectors
Jan Stegemann, Fraunhofer Institute for Microelectroni Circuits and Systems IMS, Germany

11:30 - 11:45 O04.01	High-performance miniaturized NIR spectrometers for various applications **Robert Brückner**, Senorics GmbH, Germany	
11:45 - 12:00 O08.05	Fast Qualitative and Quantitative Analysis of Peucedanum Praeruptorum Dunn By The Handheld NIR Spectrometers **Hui Yan**, Jangsu University of Science and Technology, China	
12:00 - 12:35	Lunch Break	
12:35 - 14:00	**Poster Session III and Exhibition**	**Tirol Foyer**
	Optional presentation of all Posters	
14:00 - 15:55	**Afternoon Session A – Hyperspectral Imaging II** **Chair: Wouter Saeys**	**Hall Innsbruck**
14:00 – 14:25 KN11	**Keynote 11** Model building in NIR spectral imaging: basic principles and selected applications **Aoife Gowen**, University of Dublin, Ireland	
14:25 - 14:40 O07.09	The power of NIR hyperspectral imaging for visualizing water patterns during dehydration of nonvascular epiphytic communities **Cristina Malegori**, University of Genova, Italy	
14:40 - 14:55 O07.11	Development of a portable hyperspectral imaging system for citrus disease detection **Jianwei Qin**, USDA - Agricultural Research Service, USA	
14:55 - 15:10 O07.06	Geometrical influence correction of apples near infrared hyperspectral images for early bruise detection **Bin Li**, Nagoya University, Japan	

15:10 - 15:25 O07.02
From field monitoring to post-harvest sorting: application of NIR spectral imaging systems to face Halyomorpha halys insect pest
Rosalba Calvini, University of Modena and Reggio Emilia, Italy

15:25 - 15:40 O07.04
Near infrared hyperspectral imaging: specific solutions for specific challenges still to be solved
Juan Antonio Fernández Pierna, Walloon Agricultural Research Centre, Belgium

14:00 - 15:55 Afternoon Session B – Fundamentals and Instrumentation II — Hall Brüssel

Chair: Krzysztof Bec

14:00 – 14:25 KN12
Keynote 12
Hyperspectral Imaging for Process Control in Coating and Finishing Technology
Tom Scherzer, Leibniz Institute of Surface Engineering, Germany

14:25 - 14:40 O05.06
Investigation on variations in protein hydration and hydrogen bond network of water molecules induced by the secondary structural changes of proteins using near-infrared spectroscopy
Mika Ishigaki, Shimane University, Japan

14:40 - 14:55 O05.10
Sensor for Rapid In-Field Identification of Illegal Cannabis Products
Robert Zimmerleiter, Research Center for Non-destructive Testing GmbH, Austria

14:55 - 15:10 O05.04
Computational Insights into Peptide Anharmonicity: Decoding NIR Spectra for Structure and Function
Justyna Grabska, University of Innsbruck, Austria

15:10 - 15:25 O05.09
Assessment of total alkaloids in Cinchona bark using a developed portable NIR spectrometer
Dilip Sing, Jadavpur University, India

15:25 - 15:40 O05.08
Novel sampling and measurement NIR solutions in practice Part 1
Marion O'Farrell, SINTEF AS, Norway

15:40 - 15:55 O05.05
Optimizing spectral requirements for the handheld spectrometer of the future – a data-driven approach
Michael Hanke, trinamiX GmbH, Germany

15:55 - 16:10 Snack Break and Exhibition

16:10 - 17:25 Flash Talks **Hall Brüssel**
Chairs: Justyna Grabska and Paul J. Williams

F03.01
Synergy: FTNIR and Chemometrics Multivariate for Smart Gasoline Blending System
Hemadevi Balasubramaniam, Petroliam Nasional Berhad (PETRONAS), Malaysia

F03.02
Quality Prediction and Monitoring of Gasoline using FTIR Spectroscopy During Blending Process
Melike Duvanoğlu, Turkish Petroleum Refineries Corporation, Turkey

F03.03
Developing New Microbiological Testing Approaches to Expedite Antimicrobial Product Development – A Proof-of Principle Study Using a Handheld NIR Instrument
Rebecca Orrell-Trigg, RMIT University, Australia

F03.04
Increasing understanding and robustness of NIR models by diagnosing the cage of covariance
Erik Tengstrand, Nofima, Norway

F03.05
Evaluation of 1D Convolutional Neural Network in Estimation of Mango Dry Matter Content
Jeremy Walsh, CQUniversity, Australia

F03.06
Spectroscopic tracking of molecular changes during whole flour storage
Verena Wiedemair, National Agricultural Research Organization (naro), Japan

F03.07 Improved Principal Component Analysis (IPCA): A Novel Method for Quantitative Calibration Transfer between Different Near-Infrared Spectrometers
Hui Zhang, Shandong University, China

F07.01 Early detection of Penicillium Digitatum using hyperspectral imaging and deep learning
Salvador Castillo Girones, Instituto Valenciano De Investigaciones Agrarias, Spain

F07.02 Non-destructive monitoring and classification of potato quality during storage using hyperspectral imaging
Ye-Na Kim, Chungnam National University, South Korea

F07.03 Mapping hyperspectral NIR images using supervised self-organizing maps: Discrimination of weedy rice seeds
Sureerat Makmuang, Chulalongkorn University, India

F07.04 Differentiation of listeria monocytogenes serotypes using Near Infrared Hyperspectral Imaging
Rumbidzai Matenda, Stellenbosch University, South Africa

F07.05 Feasibility of Spectral Imaging and Data Fusion for Classification of Turkish Wheat Kernels
Gozde Ozdogan, University College Dublin, Ireland

19:00 - 23:00 Conference Dinner Hall Dogana

THURSDAY, AUGUST 24, 2023
Location Congress Innsbruck

09:00 - 10:55	Session A – Chemometrics II Chair: Yukihiro Ozaki	Hall Innsbruck

09:00 - 09:25 KN13
Keynote 13
NIR Spectroscopy Contributed to SDGs - from Viewpoint of Wood Science and Technology
Satoru Tsuchikawa, Nagoya University, Japan

09:25 - 09:40 O03.03
Evolutionary search in NIR spectral libraries
Laura Michelle Diaz Villagomez, ETH Zurich, Switzerland

09:40 - 09:55 O03.06
A complete scheme for unsupervised multivariate calibration monitoring
Valeria Fonseca Diaz, KU Leuven, Belgium / Software Competence Center Hagenberg, Austria

09:55 - 10:10 O03.02
Needle in a haystack – Near-Infrared Method development and validation for quantitation of a biological novel food in rodent diet
Máté Csontos, Science Port Ltd., Hungary

10:10 - 10:25 O03.07
Extended Multiplicative Signal Correction with a priori knowledge to improve PLS regression
Arnoud Jochemsen, Norwegian University of Life Sciences, Norway

10:25 - 10:40 O03.04
SO-PLS needs PROSAC to boost its confidence in handling multiblock spectral data
Jose Antonio Diaz-Olivares, KU Leuven, Belgium

10:40 - 10:55 O03.01
Advance Denoisiong Methods for Spectral Analysis based on Decomposition Algorithms
Xihui Bian, Tiangong University, China

09:00 - 10:55	Session B – Agriculture, Dairy and Food IV Chair: Akifumi Ikehata	Hall Brüssel

09:00 - 09:25 KN14
Keynote 14
Machine learning approaches for NIR spectroscopy in herbal medicine production
Stefan Schönbichler, Bionorica Research GmbH, Austria

09:25 - 09:40 O01.02
Fourier transform near infrared spectroscopy of otoliths coupled with machine learning can predict fish age more efficiently and with comparable precision compared to traditional ageing methods
Irina Benson, Alaska Fisheries Science Center, National Marine Fisheries Service, NOAA, USA

09:40 - 09:55 O01.03
Predicting fungal infection sensitivity of sepals in harvested tomatoes using Hyperspectral Imaging and Partial Least Squares Discriminant Analysis
Mercedes Bertotto, Wageningen University and Research, Netherlands

09:55 - 10:10 O03.13
Revolutionizing Food Quality Assessment and Traceability with AI-Powered Multimode Spectroscopy Handheld Scanner
Fartash Vasefi, Safetyspect Inc., USA

10:10 - 10:25 O10.03
Fusion of active hyperspectral imaging and Raman spectroscopy for classification of plastics with brominated flame retardants
Francisco Senna Vieira, VTT Technical Research Centre of Finland, Finland

10:25 - 10:40 O01.12
How micro/portable near infra-red (NIR sensors achieve laboratory-scale performance?
Hafiz Muhammad Hussain Khan, Food Research Center, Ireland

10:40 - 10:55 O01.21
Strawberries go high-tech - Novel sampling and measurement NIR solutions in practice Part 2
Jens Petter Wold, Nofima, Norway

10:55 - 11:30 Coffee and Snack Break

11:30 - 12:30 Closing Plenary Session — Hall Innsbruck
Chair: Søren Balling Engelsen

11:30 - 12:00
PL06
Plenary Lecture 6
State-of-the-art NIR imaging - Instrumentation and applications
Yukihiro Ozaki, Kwansei Gakuin University, Japan

12:00 - 12:30
PL07
Plenary Lecture 7
Spectroscopy through the eyes of a chemometrician; How NIR can profit from recent advances in chemometrics
Federico Marini, University La Sapienza, Italy

12:30 - 13:00 Poster Awards — Hall Innsbruck

13:00 - 13:30 Conference Closing — Hall Innsbruck

Addresses from Chair of NIR 2023 (**Christian Huck**) and ICNIRS President (**Søren Balling Engelsen**)
Updated Information on NIR 2025 in Rome, Italy (**Federico Marini**)

LIST OF SPEAKERS

PLENARY SPEAKERS

Plenary Lecture 1
Near Infrared Spectroscopy Explores Mysteries of Ancient and Modern Medicine
Gerhard Litscher
Medical University of Graz, Austria

Plenary Lecture 2
Good Vibrations in the Gas Phase - From NIR to MIR
Boris Mizaikoff
University of Ulm, Germany

Plenary Lecture 3
Near-Infrared Spectroscopy: A "Restless" Analytical Technique for a Multiplicity of Applications
Heinz Wilhelm Siesler
University of Duisburg-Essen, Germany

Plenary Lecture 4
NIRS: the green analytical choice for future sustainable food production
Søren Balling Engelsen
University of Copenhagen, Denmark

Plenary Lecture 5
Analysis of cereal quality using NIR spectroscopy - a journey that began on 1st August 1975
Marena Manley
University of Stellenbosch, South Africa

PLENARY SPEAKERS

Plenary Lecture 6
State-of-the-art NIR imaging - Instrumentation and applications
Yukihiro Ozaki
Kwansei-Gakuin
University, Sanda, Hyogo, Japan

Plenary Lecture 7
Spectroscopy through the eyes of a chemometrician; How NIR can profit from recent advances in chemometrics
Federico Marini
University La Sapienza, Rome, Italy

Special Industry Address
„NIRvolution"
Michael Popp
Bionorica, Neumarkt, Germany

KEYNOTE SPEAKERS

Keynote 1
NIRS - Aquaphotomics: New Integrative Science and Technology Platform
Roumiana Tsenkova
University of Kobe, Japan

Keynote 2
Introducing novel photothermal sensing strategies for the analysis of gases and liquids using NIR and MIR lasers
Bernhard Lendl
Technical University of Vienna, Austria

Keynote 3
Chemometrics is more than algorithms?
Tom Fearn
University College London, United Kingdom

Keynote 4
Main trends and
opportunities in the use of new generation of near-infrared sensors for the control, authentication and monitoring of agrifood products and processes
Dolores Perez-Marin
University of Cordoba, Spain

Keynote 5
Advancement of hyperspectral imaging and future trends for food safety and quality applications
Moon Kim
United States Department of Agriculture, ARS, USA

KEYNOTE SPEAKERS

Keynote 6
Elastic and Inelastic Light Scattering Spectroscopy:
The Hidden Champion in PAT Applications
Rudolf Kessler
Reutlingen University and Kessler ProData GmbH, Germany

Keynote 7
Subsampling, sampling, oversampling? NIR or HSI-NIR?
Jose Manuel Amigo
University of Basque, Spain

Keynote 8
Recent Results of Near Infrared
Spectroscopy on the Way "From Farm to Fork" or Even Further
Zoltán Kovács
Hungarian University of Agriculture and Life Sciences, Hungary

Keynote 9
Control of Polymerization Process and Study on Polymer
Structure Using NIR & IR
Longhai Guo
College of Material Science and Technology, Beijing University
of Chemical Technology, Beijing, China

Keynote 10
Point-of-care applications of near-infrared spectroscopy in
clinical medicine
Bayden Wood (Chemistry Europe Lecturer)
Monash University, Australia

KEYNOTE SPEAKERS

Keynote 11
Model building in NIR spectral imaging: basic principles and selected applications
Aoife Gowen
University of Dublin, Ireland

Keynote 12
Hyperspectral Imaging for Process Control in Coating and Finishing Technology
Tom Scherzer
Leibniz Institute of Surface Engineering (IOM), Germany

Keynote 13
NIR Spectroscopy Contributed to SDGs - from Viewpoint of Wood Science and Technology
Satoru Tsuchikawa
Nagoya University, Japan

Keynote 14
Machine learning approaches for NIR spectroscopy in herbal medicine production
Stefan Schönbichler
Bionorica Research, Innsbruck, Austria

LIST OF POSTERS

THEME 01: AGRICULTURE, DAIRY AND FOOD

Number	Title	Speaker	Affiliation
P01.01	Determination of the Blood Content in Fattened Goose Liver as an Important Quality Parameter by means of NIR Spectroscopy	Juan Pablo Aguinaga Bósquez	Hungarian University of Agriculture and Life Sciences (mate), Institute of Food Science and Technology
P01.02	NIR and MIR milk spectra to predict feed efficiency of dairy cows	Silvia Ampuero Kragten	Agroscope
P01.03	ProPlant: A ML-driven approach for predicting protein in species beyond the known using generalized NIR sensor-based multiple cereal model	Krithika Anbazhagan	International Crops Research Institute for the Semi-arid Tropics (icrisat)
P01.04	Development of a portable, low-cost and non-invasive screening of virgin olive oils quality by NIR	Alejandra Arroyo-Cerezo	University of Granada
P01.05	Influence of Milk fat on milk coagulation process: an Aquaphotomics approach	Stefania Barzaghi	Consiglio per la ricerca e l'analisi dell'economia agraria
P01.06	Environmental performance comparison among a vis/NIR benchtop device, a cost-effective vis/NIR portable device, and wet-chem analyses for the assessment of grape (Vitis vinifera L.) quality parameters	Roberto Beghi	Università degli Studi di Milano

P01.07	The future of fish age estimation: deep machine learning coupled with Fourier transform near infrared spectroscopy of otoliths.	Irina Benson	Noaa Fisheries / Afsc
P01.08	Standardized processes for the continuous improvement of near-infrared spectroscopy in-field application	Virginie Blanvillain	AB Vista
P01.09	Hyperspectral imaging and aquaphotomics for disease detection in plants	Ingunn Burud	Norwegian University of Life Sciences
P01.10	Monitoring Vegetable Dehydration Process by Aquaphotomics from Lab Scale to Farm	Tiziana Maria Piera Cattaneo	CREA
P01.11	Homebrewing and portable NIR instruments: monitoring the fermentation of ready-made malt extract using the SCiO sensor	Nicola Cavallini	Polytechnic of Turin
P01.12	A preliminary investigation of geographical origin classification of durian (CV. Mon thong) using near-infrared diffuse reflectance spectroscopy coupled with K-Nearest Neighbor and Random Forests methods.	Kingdow Chanachot	KMITL
P01.13	Classification of bruised and non-bruised longan fruits by color measurement coupled with machine learning	Kingdow Chanachot	KMITL
P01.14	Use of portable NIR spectrometers in tandem with PCA, DD-SIMCA and PLS-DA to classify and distinguish oleogels	Marina De Gea Neves	University Duisburg-Essen

P01.15	Rapid determination of the shell content in cocoa products using FT-NIR spectroscopy and chemometrics	Alissa Drees	University of Hamburg
P01.16	Riding a road roller in a Formula 1 run; NIR vs HPLC in GLP reguated environment	János Elek	Science Port Ltd.
P01.17	Real-time spectral measurements of quality in a brewery setting	Glen Fox	University of California
P01.18	Near infrared spectroscopy as a reliable tool for the control analysis of Cannabis sativa L.	María Teresa García-Valverde	Phytoplant Research SLU
P01.19	Optimization and evaluation of different portable NIRS instruments for on-site inspections of Virgin Olive Oils (VOOs)	Mar Garrido-Cuevas	University of Cordoba
P01.20	NIR monitoring of Hemp oil shelf life stored in different materials and at two temperatures	Andrea Gasparini	Crea-za Lodi
P01.21	Farm to fork‘ quality control during the production of a value-added dairy product	Zoltan Gillay	Adexgo Kft.
P01.22	Determining Moisture Content of Basil Using Handheld NIR Spectroscopy	Reyhaneh Gorji	Mälardalen University
P01.23	Saffron valorisation by NIR spectroscopy	Sılvıa Grassi	Università degli Studi di Milano
P01.24	Uses of portable FT-NIR to determine cannabinoids and terpenes in dry cured cannabis flowers	Adham Hamed	Si-ware Inc.

P01.25	Feasibility of using portable NIRS to discriminate Iberian ham according to breed	Miriam Hernández-Jiménez	Universidad de Salamanca
P01.26	Prediction of the texture of Iberian ham and shoulders using NIRS technology	Miriam Hernández-Jiménez	Universidad de Salamanca
P01.27	Calibrating for Fatty Acids in Camelina by NIR using Multiple Oilseed Varieties	David Honigs	PerkinElmer
P01.28	Study on the Detection of Rice Seed Vigor by Near-infrared Hyperspectral Imaging Technology	Haiyan Ji	China Agricultural University
P01.29	Rapid Quantification of Polyphenols using dispersive SPE assisted NIRS	Christoph Kappacher	Leopold-Franzens University Innsbruck
P01.30	NIR imaging system coupled with a RGB imager for weather stress evaluation of sweet potato	Geonwoo Kim	Gyeongsang National University
P01.31	Nondestructive Detection of Major Defects on Tomato Using Visible and Near-Infrared (VIS-NIR) Hyperspectral Imaging.	Haeun Kim	Chungnam National University
P01.32	Performance of NIR spectroscopy to predict amino acids content in forages	Vincent Larat	Adisseo
P01.33	Potential of a portable NIR spectrometer to classify beef carcasses in the abattoir according to the diet supplied	Sara León-Ecay	Universidad Pública de Navarra
P01.34	Physical fingerprint transformation of herbal medicines powders using near-infrared spectroscopy	Wenlong Li	Tianjin University of Traditional Chinese Medicine

P01.35	Development of NIR spectroscopy methods for the quantitative evaluation of fruit extracts and fortified fruit juice	Matyas Lukacs	Hungarian University of Agriculture and Life Sciences, Institute of Food Science and Technology
P01.36	Monitoring the ripening of cheese at various temperatures by means of near infrared spectroscopy	Mariem Majadi	Hungarian University of Agriculture and Life Sciences, Institute of Food Science and Technology
P01.37	Near Infrared Spectroscopy as a tool for the monitoring in the commercialization of the mussel Perna perna (Linnaeus, 1758)	Clélia Mello-Silva	Fundação Oswaldo Cruz
P01.38	NIR Spectroscopy Models for phenotyping wood properties of Corymbia torelliana x Corymbia citriodora.	Leticia Miranda	Klabin S/a
P01.39	Adaptive NIR Prediction Models for the Facile Inclusion of New Data	Emily Moore	PerkinElmer Scientific Canada ULC
P01.40	A classification model for various milk powder brands and types using Near-Infra-Red (NIR) spectroscopy and Partial Least Squares-Discriminant Analysis (PLS-DA)	Áine Ní Fhuaráin	UCD/DPTC
P01.41	Authentication of the Iberian pig' feeding regime and the corresponding commercial category via NIRS analysis of faeces and chemometrics	Nieves Núñez-Sánchez	University of Cordoba

P01.42	Measurement of qualitative parameters of grapes during the final stages of ripening using vis/NIR spectroscopy: application in real scale conditions in wineries	Alessia Pampuri	Università degli Studi di Milano
P01.43	The usefulness of NIRS calibrations based on feed and feces spectra to predict nutrient content, digestibility and net energy of pig feeds	Louis Paternostre	Cra-w
P01.44	New insights into the discrimination of sugarcane clones in the field using near-infrared spectra	Luiz Alexandre Peternelli	Universidade Federal de Vicosa
P01.45	WITHDRAWN		
P01.46	WITHDRAWN		
P01.47	Combination of NIR and Raman spectroscopy for the assessment of the botanical origin of monofloral honey using the LASSO method.	Roberto Piro	Istituto Zooprofilattico Sperimentale Delle Venezie
P01.48	Identification of lentil variety in wheat flours fortified with lentil flour using NIR technology	Isabel Revilla	Universidad de Salamanca
P01.49	The use of NIR spectrometry for the prediction of Fe and Mg in muffins made with wheat-lentil fortified flours	Isabel Revilla	Universidad de Salamanca
P01.50	NIR-Spectroscopy of Forages – Sampling Aspects for dried Powders and Consequences for multivariate Calibrations	Robert Schulenburg	South-Westphalia University of Applied Sciences

P01.51	Development of Reference Materials for Spectrometer Standardization with Focus on NIR-spectrometric Forage Moisture Assays using diffuse Reflection Measurements	Robert Schulenburg	South-Westphalia University of Applied Sciences
P01.52	ANOVA-simultaneous component analysis (ASCA) to characterise effect of temperature on FT-NIR spectral data of roasted wheat	Mia Schutte	Stellenbosch University
P01.53	Assessment of the Feasibility and Relevance of Handheld Near-Infrared Spectroscopy for Determining Dairy Manure Composition on Farm	Mohy-El-Din Sherif	AB Vista
P01.54	Hyperspectral Imaging Coupled with Support Vector Machine for Classification of Anthracnose Infection on Mango Fruit	Ubonrat Siripatrawan	Chulalongkorn University
P01.55	Feasibility online classification for durian fruit maturity using NIR spectroscopy	Panmanas Sirisomboon	King Mongkut's Institute of Technology Ladkrabang
P01.56	Classification of storage durations of intact pomelo by narrow neural network	Panmanas Sirisomboon	King Mongkut's Institute of Technology Ladkrabang
P01.57	Applications of point near-infrared spectroscopy and hyperspectral imaging for real-time quality monitoring of hydroponically grown leafy greens	Jan Skvaril	Malardalen University

P01.58	Fusion of NIR and Raman spectra for the classification of Parmigiano Reggiano Mountain Product	Lorenzo Strani	University of Modena and Reggio Emilia
P01.59	Sourdough FT-NIR spectra: effect of dough yield (DY) and flour type using ANOVA-simultaneous component analysis (ASCA)	Mari Van Wyk	Stellenbosch University
P01.60	Quality and safety assessment of in-shell and shelled almonds using an NIR portable device	Miguel Vega-Castellote	University of Cordoba
P01.61	Pinpointing the effect of argon packaging and storage on the near infrared spectra of sliced iceberg lettuce	Flora Vitalis	Hungarian University of Agriculture and Life Sciences
P01.62	Quality control on biochar on feedstock and pyrolysis condition using NIRS	Kerry Walsh	CQUniversity
P01.63	Early detection of mycotoxigenic fungi on maize using spectral imaging: considerations	Paul J Williams	Stellenbosch University
P01.64	Assessment of the optical properties with cell wall polysaccharides of 'Korla' pear flesh during Alternaria alternata-induced disease development	Sicong You	Nanjing Agricultural University
P01.65	analysis of foreign matter misidentification cases found in alcoholic beverages using ft-ir	Yeon Cheol Yu	Ministry of Food and Drug Safety of South Korea
P01.66	Multiple damage mechanism and damage prediction model of kiwifruit based on near infrared hyperspectral	Jiacheng Yuan	Huazhong Agricultural University

P01.67	WITHDRAWN		
P01.68	Preliminary evaluation of near infrared spectroscopy to predict key compositional parameters of Irish raw milk industry samples over a full season	Kexin Zhang	Teagasc Food Research Centre
P01.69	Different ways to assess the vitreousness of durum wheat kernels using NIR spectroscopy	Juan Antonio Fernández Pierna	Walloon Agricultural Research Centre
P01.70	Phytate-bound phosphorus and NIR spectra of wheat grains	Roger Meder	Ridley Agriproducts / Meder Consulting / University of the Sunshine Coast
P01.71	Figthing food frauds with NIR Spectroscopy and Chemometrics: a story of success.	Francesco Savorani	Politecnico di Torino
P01.72	A rapid quantification NIR model to detect melamine adulteration in sport nutrition supplements	Zoran Zhivikj	Faculty of Pharmacy, Ss. Cyril and Methodius University in Skopje
P01.73	NIR spectroscopy for monitoring the decarboxylation pathway of the main phytocannabinoids in Cannabis sativa	Olga Gigopulu	Faculty of Pharmacy, Ss. Cyril and Methodius University in Skopje
P01.74	Sampling strategies in the use of portable NIR instruments for quality control of human milk	Candela Melendreras García	University of Oviedo

P01.75	Assessing the potential of Hyperspectral Imaging and Fourier Transform-Near Infrared Spectroscopy for Prediction of Internal Constituent of Tomatoes	Maria Luisa Amodio	Università di Foggia
P01.76	Monitoring of protein hydrolysation by near-infrared spectroscopy	Yoshitomo Amo	Morinaga Milk Industry Co.,Ltd.
F01.01	Near Infrared Spectroscopy for monitoring the nutritional and microbial quality of Black soldier fly larvae (BSFL)	Shanmugam Alagappan	The University Of Queensland
F01.02	NIR spectroscopy towards green transition	Tomasz Czaja	University of Copenhagen
F01.03	Rapid Determination of Nutmeg Shell Content in Ground Nutmeg using FT-NIR Spectroscopy and Machine Learning	Alissa Drees	University of Hamburg
F01.04	Near-Infrared Spectroscopy for Mycotoxin Screening in Food Crops: Current State-of-the-Art and Challenges	Stephan Freitag	University of Natural Resources and Life Sciences, Vienna
F01.05	Application of deep learning and near infrared spectroscopy for assessment of quality for Assam CTC tea	Ajanto Hazarika	Tocklai Tea Research Institute
F01.06	Study on Black Spot Disease Detection and Visualization on Winter Jujubes Using Hyperspectral Imaging System	Weijie Lan	Nanjing Agricultural University
F01.07	The use of Near Infrared Spectroscopy for the analysis of Fumonisin B1 dissolved in water and methanolf	Paul J Williams	Stellenbosch University

F01.08	Classification of tapioca starch hydrolysis products based on their Brix and Dextrose values using NIRS in transflectance mode	Chayanid Sringarm	Naresuan University

THEME 2: ALLERGENICS/TRADITIONAL MEDICINE

Number	Title	Speaker	Affiliation
P02.01	Rapid gradation of Piper nigrum seeds using a portable NIR Spectrometer and Machine learning method	Rajib Bandyopadhyay	Jadavpur University

THEME 03: CHEMOMETRICS

Number	Title	Speaker	Affiliation
P03.01	FT-NIR chemometric models optimization using Bayesian search	Yasser Aboelmagd	Si-Ware Systems
P03.02	Spectral Variable Selection Method Based on Swarm Intelligence Optimization Algorithms	Xihui Bian	Tiangong University
P03.03	Binding Mechanism of Polyproline to Ice Revealed by Molecular Simulations	Wensheng Cai	Nankai University
P03.04	Effects of sample grinding in NIR spectroscopy	Máté Csontos	Science Port Ltd.
P03.05	Optimizing feed quality prediction with local partial least squares regression	Antoine Deryck	Walloon Agricultural Research Centre
P03.06	Improved NIR calibrations robustness using stacked modeling	Adham Hamed	Si-ware Inc.

P03.07	Assessing Historical Papers with NIR spectroscopy and Chemometrics	Hajar Khaliliyan	University of Natural Resources and Life Sciences, Vienna (BOKU)
P03.08	Five different spectra per sample; Multispectral analysis of a collection of solid geological specimens. Can different spectra help each other and how?	Johan Linderholm	Umeå University
P03.09	NIR-spectroscopy Applied to Contemporary Art Analysis	Michal Oravec	Slovak National Gallery
P03.10	Changeable moving window-standard normal variable method for Vis-NIR spectroscopy	Tao Pan	Jinan University
P03.11	WITHDRAWN		
P03.12	Calibration transfer between different spectrometers using wavelength correspondence	Erik Tengstrand	Nofima
P03.13	CRAWLSPEC: Centralised Reference Analytical Web-accessible Library of SPECtra	Philippe Vermeulen	Cra-w
P03.14	Considerations and Tools for Final Model Selection	Barry M Wise	Eigenvector Research, Inc.
P03.15	Application of NIRS in qualitative discrimination of different origins of Tibetan Yinchen	Mengqi Zhang	Shandong University

P03.16	Comparison of Spectroscopic Methods to Determine Physical Properties of Light Diesel Samples in Refinery Production Using Multivariate Calibration Methods	Ayten Ekin Meşe Sezen	Turkish Petroleum Refineries Corporation
P03.17	Combining PCA with the visualization method t-SNE for the analysis of data from near-infrared spectroscopy.	Antoine Deryck	Walloon Agricultural Research Centre
P03.18	Comparison of Predictive Model Robustness for Intact Mango Fruit Dry Matter Content	Clinton Hayes	Central Queensland University
F03.01	Synergy: FTNIR and Chemometrics Multivariate for Smart Gasoline Blending System	Hemadevi Balasubramaniam	Petroliam Nasional Berhad (PETRONAS)
F03.02	Quality Prediction and Monitoring of Gasoline using FTIR Spectroscopy During Blending Process	Melike Duvanoğlu	Turkish Petroleum Refineries Corporation
F03.03	Developing New Microbiological Testing Approaches to Expedite Antimicrobial Product Development – A Proof-of Principle Study Using a Handheld NIR Instrument	Rebecca Orrell-Trigg	RMIT University
F03.04	Increasing understanding and robustness of NIR models by diagnosing the cage of covariance	Erik Tengstrand	Nofima
F03.05	Evaluation of 1D Convolutional Neural Network in Estimation of Mango Dry Matter Content	Jeremy Walsh	CQUniversity

F03.06	Spectroscopic tracking of molecular changes during whole flour storage	Verena Wiedemair	National Agricultural Research Organization (naro)
F03.07	Improved Principal Component Analysis (IPCA): A Novel Method for Quantitative Calibration Transfer between Different Near-Infrared Spectrometers	Hui Zhang	Shandong University

THEME 04: CONSUMABLES AND LIFE-STYLE PRODUCTS

Number	Title	Speaker	Affiliation
P04.01	Use of NIR spectroscopy for the monitoring and control of textile dyeing processes	Francisca Marques	TINTEX
P04.02	Near-infrared spectroscopic examination of water interaction with polymer matrices	Vanessa Moll	University of Innsbruck
P04.03	Near-infrared spectroscopy vs. ambient mass spectrometry – method comparison for the quantification of sucralose in commercial e-liquids	Tobias Schlappack	Leopold-Franzens University Innsbruck

THEME 05: FUNDAMENTALS AND INSTRUMENTATION

Number	Title	Speaker	Affiliation
P05.01	Comparative analysis of NIR spectrometers for pharmaceutical formulation prediction: Performance evaluation and model interpretation in benchtop and portable FT-NIR and LVF-based instrumentss	Krzysztof Bec	University of Innsbruck
P05.02	Benchmarking of a new portable NIR sensor with custom written software for application in post-harvest technology	Mercedes Bertotto	Wageningen University And Research
P05.03	Detection of succinylation in charge rich proteins using a label free approach: ProCharTS	Simangka Borsaikia	Indian Institute Of Technology
P05.04	What is hidden underneath NIR lineshape of water?	Justyna Grabska	University of Innsbruck
P05.05	Characterization of PNiPAAm-co-AAc during the drying process using NIR and 2D correlation spectroscopy	Young Mee Jung	Kangwon National University
P05.06	A novel easy to implement instrumental setup for near-infrared emission spectroscopy (NIRES)	Celio Pasquini	State University of Campinas
P05.07	Modeling of Glycolytic Oscillations in Yeast Extracts by NIR and Metabolite Analysis by 1H-NMR	Miho Sesumi	National Agriculture And Food Research Organization

P05.08	Thin-Layer Chromatography Coupled with Near-Infrared Spectrometry (TLC-NIR) and Its Application to the Detection of Spinach Extract	Emiko Yamamoto	Osaka Electro-Communication University
P05.09	Process analytical technology via calibration-free VIS-/NIR-spectroscopy	Florian Foschum	ILM
F05.01	Bloodstains dating by means of NIR and UV-Vis spectroscopy – a critical comparison	Sara Gariglio	University of Genova
F05.02	Nonlinear concentration-dependent scattering coefficient with a colloidal solution and its origin	Goro Nishimura	Hokkaido University
F05.03	Tailoring Spectral Sensors for Specific Applications	Don van Elst	Eindhoven University of Technology

THEME 06: FUTURE TRENDS

Number	Title	Speaker	Affiliation
P06.01	Asparagus fraud detection using hyperspectral imaging and portable NIR spectroscopy.	Miriam Alonso	CNTA
P06.02	WITHDRAWN		
P06.03	In-situ characterization of seized ecstasy using a compact near-infrared spectrophotometer	Maria C. Hespanhol	Universidade Federal de Vicosa
P06.04	Near-infrared sensor for in-line state-of-charge determination of zeolite-based heat storages	Evgeny Legotin	TU Wien

P06.05	Infrared spectroscopy applied to Filo Mollusca: a systematic review and new trends	Clélia Mello-Silva	Fundação Oswaldo Cruz
P06.06	Introducing open-source chemometrics software and web-services into the traditional NIR manufacturing industry	Leonardo Ramirez-Lopez	Buchi Labortechnik AG

THEME 07: HYPERSPECTRAL IMAGING

Number	Title	Speaker	Affiliation
P07.01	Comparison of Pretreatment Methods in Use of Vis/NIR Spectral Imaging to Detect and Quantify Different Modes of Microbial Biofilms on Aluminium and HDPE Surfaces	Nazan Altun	University College Dublin (UCD)
P07.02	Hyperspectral imaging as a tool for quality control of bricks	Ingunn Burud	Norwegian University of Life Sciences
P07.03	Data Augmentation Effect of Deep Learning Model Based on Hyperspectral Fluorescence Imaging Data for Early Detection of Botrytis cinerea in Strawberry	Seungwoo Chun	Kangwon National University
P07.04	WITHDRAWN		
P07.05	Prediction of in vitro dissolution profile of sustained release tablets based on NIR and Raman imaging and artificial intelligence	Dorián Galata	Budapest University of Technology And Economics

P07.06	Hyperspectral Imaging (HSI) combined with chemometrics and statistical methods for identifying low-level adulteration in ground beef: classification, regression, and visualization studies	Wenyang Jia	Queen's University Belfast
P07.07	Layered data fusion approaches using Spectral Imaging to assess the changes in myoglobin content of packaged veal products during storage	Wenyang Jia	Queen's University Belfast
P07.08	Real-time detection of nitrogen over-supply oriental melon plants using hyperspectral visible and near infrared image	Hangi Kim	Chungnam National University
P07.09	Improved Sortability of Plastic Packaging Films through Adapted Near-Infrared Spectroscopy and Custom Machine Learning Models"	Gerald Koinig	Montanuniversität Leoben
P07.10	Dimensional Reduction of Spectral Data Through Feature Selection for the Real-Time Classification of Plastic Waste	Nikolai Kuhn	Montanuniversitaet Leoben
P07.11	Tomato maturity classification by combining PLS-DA model and hyperspectral fluorescence imaging technology	Bo-Young Lee	Kangwon National University
P07.12	Variable selection methods to detect Esca disease in grapevine leaves using near-infrared hyperspectral imaging	Sara León-Ecay	Universidad Pública de Navarra

P07.13	FRAUD DETECTION IN THE FISHING SECTOR USING HYPERSPECTRAL IMAGING	Paula Luri Esplandiu	Centro Nacional de Tecnología y Seguridad Alimentaria (CNTA)
P07.14	WITHDRAWN		
P07.15	Maturity Discrimination Model of Citrus using Hyperspectral Fluorescence Imaging and Convolutional Neural Network	Changyeun Mo	Kangwon National University
P07.16	Dealing with the challenge of insufficient labelled data in the task of classifying potassium status of rubber leaves using NIR hyperspectroscopy	Tang Rongnian	Hainan University
P07.17	Detection of Black Heart Internal Defect of Pomegranate fruit (Punica granatum L.) by Using Vis-NIR Hyperspectral Imaging	Lucia Russo	UniFG
P07.18	Use of NIR hyperspectral imaging for the characterization and evaluation of triptych from the Venetian Gothic period	Jakub Sandak	InnoRenew CoE
P07.19	Modular snapshot hyperspectral imaging in the NIR	Jan Stegemann	Fraunhofer IMS
P07.20	Classification of post-consumer textiles using NIR spectrometers	Hana Stipanovic	Montanuniversitaet Leoben
P07.21	WITHDRAWN		

P07.22	Near infrared spectroscopy and hyperspectral imaging as a tool for analyzing carbon and nitrogen in soil cores	Philippe Vermeulen	Cra-w
P07.23	Development of a cost-effective hyperspectral camera for food quality monitoring	Sara Vignati	University of Milan
F07.01	Early detection of Penicillium Digitatum using hyperspectral imaging and deep learning	Salvador Castillo Girones	Instituto Valenciano de Investigaciones Agrarias
F07.02	Non-destructive monitoring and classification of potato quality during storage using hyperspectral imagingf	Ye-Na Kim	Chungnam National University
F07.03	Mapping hyperspectral NIR images using supervised self-organizing maps: Discrimination of weedy rice seeds	Sureerat Makmuang	Chulalongkorn University
F07.04	Differentiation of listeria monocytogenes serotypes using Near Infrared Hyperspectral Imagingf	Rumbidzai Matenda	Stellenbosch University
F07.05	Feasibility of Spectral Imaging and Data Fusion for Classification of Turkish Wheat Kernels	Gozde Ozdogan	UCD

THEME 08: IMPACTS IN PHARMA, DIAGNOSTICS AND BIOTECHNOLOGY

Number	Title	Speaker	Affiliation
P08.01	NIRS global molecular fingerprint of biobank sera of Hepatitis C patients: a promising tool for rapid diagnosis and prognosis of viral human diseases	Myriam Catala	Rey Juan Carlos University
P08.02	A simple near infrared spectroscopy system for quantification of glucose in solution and intralipid samples.	Nicholas Davison	Lancaster University
P08.03	WITHDRAWN		
P08.04	A new perspective in understanding the processing mechanisms of traditional Chinese medicine by near-infrared spectroscopy with Aquaphotomics	Lele Gao	Shandong University
P08.05	WITHDRAWN		
P08.06	Assessment of X-Irradiation Dose Exposure in Mice Using Near Infrared (NIR) Spectroscopy and Aquaphotomics	Jelena Muncan	Kobe University
P08.07	Compensating-Voting Method for Vis-NIR Spectral Pattern Recognition	Tao Pan	Jinan University
P08.08	NIR spectroscopy in pharmaceutical blend characterization: sample preparation & data analytics	Amrit Paudel	Research Center Pharmaceutical Engineering (rcpe) Gmbh

P08.09	Forensic intelligence through instant non-destructive analysis of falsified medicines via ultra-portable NIR technology	Anne-Flore Prior	University of Lausanne
P08.10	Application of rapid identification and determination of moisture content of different species of Rhizoma coptidis based on combined near-infrared and mid-infrared spectroscopy	Mengyin Tian	Shandong University
P08.11	Innovative potential of portable NIR: field use applied to the mollusk Biomphalaria	Vanessa Valladares	Fundação Oswaldo Cruz
F08.01	Near-infrared spectroscopy (NIRS) as a screening tool for lethal chytrid fungus (Batrachochytrium salamandrivorans) in eastern newts (Notopthalamus viridescens)	Li-Dunn Chen	Mississippi State University

THEME 09: PAT/INDUSTRIAL APPLICATIONS

Number	Title	Speaker	Affiliation
P09.01	Development of a PAT platform for the prediction of granule tableting properties	Tibor Casian	Iuliu Hatieganu University of Medicine And Pharmacy
P09.02	Interpretable and Interactive Transfer Learning in Process Analytical Technology	Valeria Fonseca Diaz	Software Competence Center Hagenberg

P09.03	Pharmaceutical evaluation by near-infrared spectroscopy using a high-intensity light source	Yasuto Fujimaki	Tokyo Metropolitan Industrial Technology Research Institute
P09.04	Prediction of dissolution by NIR spectroscopy and traditional process control - a data fusion approach	Béla Kovács	Gedeon Richter Romania
P09.05	In-line monitoring of a biopharmaceutical fermentation process	Félix-Antoine Lavoie	ABB
P09.06	Studies on the dissolution profiles prediction of sinomenine hydrochloride sustained-release tablets using near-infrared spectroscopy	Wenlong Li	Tianjin University of Traditional Chinese Medicine
P09.07	Real-time monitoring of multistep synthesis process of a key intermediate of Lifitegrast by a combined spectrometer system with both NIR and Raman	Quan Liu	Shanghai Jiaotong University
P09.08	PAT case studies for pharmaceutical process scale-up and optimization of solid dosage forms	Lizbeth Martinez	Novartis
P09.09	Honigs regression method to transfer spectra from an at- line to an on-line diode array instruments for process control at an olive oil plant.	Cecilia Riccioli	Perkinelmer
P09.10	Real-time measurement of biomass and waste-based fuel properties and prediction of flue gas concentrations to improve the dynamic operation of boiler and CCS unit	Jan Skvaril	Malardalen University

P09.11	Online measurement of the reaction degree during polymerization and curing process of thermosetting resins by NIR spectra and MCR-ALS	Chunfeng Song	Beijing University of Chemical Technology
P09.12	Development of a NIR based PAT tool for quantification of ibuprofen acid-salt transformation during a wet granulation process	Elizabeta Atanaskova	Alkaloid AD and Faculty of pharmacy
P09.13	NIR spectroscopy as a tool for estimation of moisture content / water content / water activity in Cannabis flowers	Olga Gigopulu	Faculty of Pharmacy, Ss. Cyril and Methodius University in Skopje
F09.01	Rapid end-point determination of the extraction processes by near-infrared spectroscopy	Lele Gao	Shandong University

THEME 10: WATER, SOIL AND ENVIRONMENT

Number	Title	Speaker	Affiliation
P10.01	Deep learning for soil carbonates content prediction from Near-Infrared spectral data	Lykourgos Chiniadis	Athena - Research and Innovation Centre in Information, Communication and Knowledge Technologies
P10.02	Near-Infrared spectroscopy for estimation of microplastic in soils - Spiking experiment	Maria Knadel	Aarhus University
P10.03	Understanding the Process of Cold Atmospheric Plasma to Water with Aquaphotomics	Lian Li	Shandong University

P10.04	Spectral library of Austrian soil samples and its application in the ProbeField project	Maximilian Lippl	AGES
P10.05	Anaerobic fungi identification by NIR spectroscopy	Markus Neurauter	University of Innsbruck
P10.06	Aquaphotomics Investigation of the Differences in Deep Seawater at Various Depths	Yoko Osafune	Dr.Recella Co., Ltd,
P10.07	1D-CNN model for topsoil moisture prediction based on ground remote sensing	Soohwan Park	Kangwon National University
P10.08	EPO or Transfer Learning? A Comparison of Soil Characterization Techniques for Soil at Field Condition	Matteo Poggio	Agrocares
P10.09	Enhancing the Deployment Efficiency of Miniaturized NIR Spectrometers for Soil Organic Matter and Total Nitrogen Estimation Using a Laboratory Master Spectrometer	Zhuolin Shi	China Agricultural University
P10.10	Combatting the Yellow Crazy Ant: Using Near-Infrared Spectroscopy to Identify and Manage Invasive Ant Species in the Wet Tropics	Russell Withers	James Cook University

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