PHOTONFOOD

Flexible mid-infrared photonic solutions
for rapid farm-to-fork sensing of food contaminants

H2020-ICT-2020-2
Project No. 101016444

Deliverable D7.7

Final Scientific Symposium

WP7 – Communication, dissemination and exploitation

Authors	Denise Diggelmann (accelCH), Johannes Ripperger (accelCH), Stephan Freitag (BOKU), Gert Salentijn (WU), Achim Kohler (NMBU), Margarita Smirnova (NMBU) *All symposium photos received with thanks from Heidi Schwartz-Zimmermann.*
Lead participant	accelCH
Delivery date	14.01.2025
Dissemination level	Public
Type	Other

Version 1.0

The PHOTONFOOD project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101016444 and is part of the Photonics Public Private Partnership (www.photonics21.org).

PHOTONICS PUBLIC PRIVATE PARTNERSHIP

Revision History

Author(s)	Description	Date
Denise Diggelmann (accelCH), Johannes Ripperger (accelCH)	Draft deliverable	18.12.2024
Stephan Freitag (BOKU), Gert Salentijn (WU)	Revision 1	20.12.2024
Achim Kohler (NMBU), Margarita Smirnova (NMBU)	Revision 2	17.01.2025
Viktória Mikulás (NEBIH)	Revision 3	24.01.2025
Denise Diggelmann (accelCH), Johannes Ripperger (accelCH)	Final version	24.01.2025

Contents

Abbreviations

DoA	Description of Action
HIFI	High fidelity
MIFI	Mid fidelity

Partner Short Names

accelCH	accelopment Schweiz AG
BOKU	University of Natural Resources and Life Sciences Vienna
NEBIH	National Food Chain Safety Office
NMBU	Norwegian University of Life Sciences
UULM	University of Ulm
WU	Wageningen University

1 Executive summary

Objectives
PHOTONFOOD objectives
The PHOTONFOOD project aims to develop and demonstrate in real settings a flexible mid-infrared photonic solution for the detection of microbial and chemical contaminations based on innovative photonic devices, paper-based sample handling and advanced data mining solutions. The aim of Work Package 7 is to communicate, disseminate and exploit the results of the project.
Deliverable objectives
The PHOTONFOOD consortium organised the Final Scientific Symposium to share their research and development results with scientists and industry professionals while exploring options for future collaboration. The present deliverable documents the preparation, reports on the implementation and evaluates the success of the symposium.
Implementation
Current status
The symposium Advancements in monitoring food contamination and quality was successfully implemented in collaboration with the projects FoodSafeR, DigiFoods, and BIOTOXDoc and attracted 90 registrations, mainly from academia and industry.
Next steps
The symposium has been completed, including its evaluation. The remaining step is to follow up on the established contacts to further discuss potential collaboration.

Legal disclaimer: The PHOTONFOOD project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101016444. The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Commission (EC).

2 Objectives

As part of Task 7.3, Disseminate research results to expert stakeholder groups, the PHOTONFOOD consortium planned a final scientific symposium. The main objective was to present "the research results and the platform to scientists, food industry professionals and decision and policy makers" (DoA).

The date in late November 2024 and the location in Tulln were set accordingly and the programme was created based on this main objective.

A year before the symposium, the consortium discussed and specified an additional objective to foster future collaboration to further develop the PHOTONFOOD results together with a strong network. This objective was tackled by including co-organisers in the symposium as well as providing ample opportunity for networking during the two days. In addition, live demonstrations of devices were included in the agenda to spark interest in the overall method and devices or specific parts and to develop these further.

3 Planning and preparation

The preparation of the symposium started a year before the event. Regular meetings took place, first within the PHOTONFOOD consortium, and later together with the co-organisers.

3.1 Collaboration and joint organisation

Early in the planning, the PHOTONFOOD consortium discussed the option of reaching out to other research and innovation projects in the same field and collaborating in the organisation, making the symposium more attractive for attendees. After reaching out, the following projects agreed to the co-organisation of the symposium:

- FoodSafeR, a Horizon Europe-funded project focusing on the advancement of innovations to combat emerging microbial and chemical food safety hazards, including the development of an Open Digital Hub.
- DigiFoods, a Norwegian-funded centre for research-based innovation with the purpose of developing smart sensor solutions for food quality assessment throughout the food value chains.

Together with PHOTONFOOD's development of portable solutions for sensing food contamination, these three projects brought together a large network and extended knowledge in the area of monitoring food contamination and quality.

In addition, the Doctoral Network BIOTOXDoc was included in the organisation. As this project started only recently, they were not official co-organisers, but they contributed to the promotion of the symposium and advised on content relevant to their network. Furthermore, the joint symposium served as an opportunity for the students of the doctoral network to gather experience on international scientific exchange at a conference.

The organising committee consisted of a representative from each of the four projects (see Table 1).

Table 1: The collaborators on the joint symposium.

Project	Representative
PHOTONFOOD	Achim Kohler (NMBU) Margarita Smirnova (NMBU) Stephan Freitag (BOKU) Gert Salentijn (WU) Denise Diggelmann (accelCH) Johannes Ripperger (accelCH)
FoodSafeR	Martin Wagner (Veterinary University Vienna)
DigiFoods	Jens Petter Wold (The Norwegian Institute of Food Fisheries and Aquaculture Research)
BIOTOXDoc	Franz Berthiller (BOKU)

Further collaboration was established with the ECREAM network which PHOTONFOOD is part of. The ECREAM members were invited to submit posters, resulting in a flash talk by the member project SYMPHONY, and ECREAM representatives were on-site to network and potentially gain new ECREAM members.

3.2 Location

The location of the symposium was Tulln, home of the Department for Agrobiotechnology, IFA Tulln, part of BOKU University, the Technopool Tulln and FFoQSI, the Austrian Competence Centre for Feed and Food Quality, Safety & Innovation. This allowed the organisers to attract attendees from the organisations on-site. In addition, the location is a hub for food safety and close to Vienna, Austria, thus easily reachable for external participants.

3.3 Concept and programme

Following the Open Science concept, the *Advancements in monitoring food contamination and quality* symposium was offered free of charge to the participants.

The event was planned as a two-day event (see Annex 1), to allow ample time for discussions and networking. While the scientific presentations were the core of the symposium, poster sessions, flash talks, and demonstrations were integral parts of the event as well. On the second day, the programme concluded with a short poster award ceremony and symposium closing.

4 The Symposium

The two-day symposium took place on 27-28 November 2024 in Tulln, Austria. The programme consisted of scientific lectures, poster sessions, flash talks and demonstrations (see Annex 1).

4.1 Scientific lectures

The presentations were grouped into four sessions: Emerging challenges in food safety and quality, Novel approaches to ensure food quality and safety, Digital solutions, and Photonic-based solutions. With these four sessions, diverse aspects of monitoring food contamination and quality were discussed and all areas relevant to the co-organising projects' target groups were covered.

4.2 Posters

All symposium participants were invited to submit a poster. The poster sessions offered opportunities for additional knowledge exchange and presentation of the first results, including from the newly started BIOTOXDoc project. The committee received 28 poster submissions, all of which were accepted. Four cancelled their poster later. The following posters were displayed next to the lecture hall and lunch area:

Topic	Presenter
FT-NIR combined with chemometrics for the prediction of benzo-pyrenes in smoked fish	Akwasi Akomeah Agyekum
Raman spectroscopy via machine learning for sunflower oil authenticity	Tareq Al-Yasari
SYMPHONY project: Smart photonic sensors combining photonics and electronics	Carlos Alonso Ramos
Evaluation of combined cytotoxicity and genotoxicity of regulated and emerging mycotoxins: focus on aflatoxin B1 precursors	Elham Atallah
Investigating fungal co-occurrence	Darina Balkova
Determination of vegetable oil species in the industrially important essential oils using FTIR-ATR spectroscopy	Nur Çebi
Development of Rapid, Easy-to-use and Cost-effective Tests for TAs in Food	Maryam Dehbasteh
The Development of Mid-Infrared Spectrometers using Tunable Lasers for Versatile Food Quality Applications	Mehmet Can Erdem
Responses of Mytilus galloprovincialis NR1J1 receptors to natural compounds: A case analysis using in silico and in vitro approaches	Maria Paula Gomez
Paper-based optical sensor arrays for food quality monitoring using volatile metabolomics	Bahram Hemmateenejad
Portable dry film FTIR system for on-site food quality assessment	Bijay Kafle
Dry-film approach for food quality analysis using a tunable laser-based compact mid-infrared spectrometer	Pranish Karki
Paper-based liquid-liquid extraction for direct paper spray mass spectrometry and immuno-detection of atropine in baby food, buckwheat cereals, and edible oils at regulatory levels	Ids Benjamin Lemmink
Identification of volatile markers from mycotoxin-producing Fusarium graminearum	Klaudia Moskot
Studying the protein composition of mycotoxigenic Fusarium spp.-infected wheat: a mid-infrared spectroscopy approach	Dedy Leonardo Nadeak
Inflammatory response to okadaic acid in mouse and human micro-endothelial cells	Klara Nybäck

Topic	Presenter
Degradation of Aflatoxin B1 by Rhodococcus erythropolis	Idoia Páramo Castillejo
Unveiling the hidden threats: Investigating modified forms of Ochratoxin A	Filip Petronijevic
Past, present and future distributions of habitats of mycotoxin-producing fungi	Richa Raj
Torwards on-field wheat quality assessment using near-infrared spectroscopy integrated in a combine harvester	Patrick Rennhofer
Strategic Grant Planning: Identify the best funding opportunities	Johannes Ripperger
tbc	Sumesh Sasidharan
Robotic Raman sensor integration for assessing Omega-3 fatty acid content in salmon fillets	Abhaya Singh
Artificial Intelligence driven portable spectrophotometer for non-invasive food quality assessment	Arun Sharma
Diversity and determination of Prymnesium parvum toxins	Elisabeth Varga
Case study: Fate of pyrrolizidine alkaloids in silage contaminated by toxic weeds	Alessandro Volkov
FoodSafeR: Is turmeric a super-food or a super-fraud	Paul Williams

During two dedicated poster sessions, the symposium attendees interacted with the poster presenters, creating interesting discussions and knowledge exchange.

Figure 2: Impressions from the poster presentations.

The organising committee invited nine senior representatives from research and industry to evaluate the posters. The evaluators worked in three groups with three judges each. Based on their assessment, the

scores were normalised against the individual scoring of each judge and then combined to identify the best three posters. These were honoured with an award during the symposium closing.

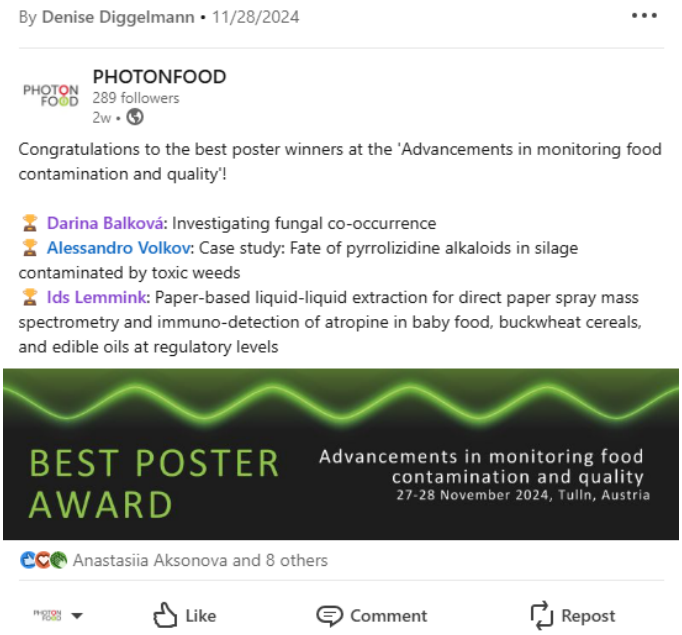


Figure 3: Social media post about the best poster winners.

4.3 Flash talks

Out of the accepted posters, nine were invited for a five-minute flash talk as part of the lectures, giving an overview of the research conducted. The flash talks aimed to spark new thoughts and to create curiosity about the posters, with research from various areas being presented within a short timeframe.

4.4 Demonstrations

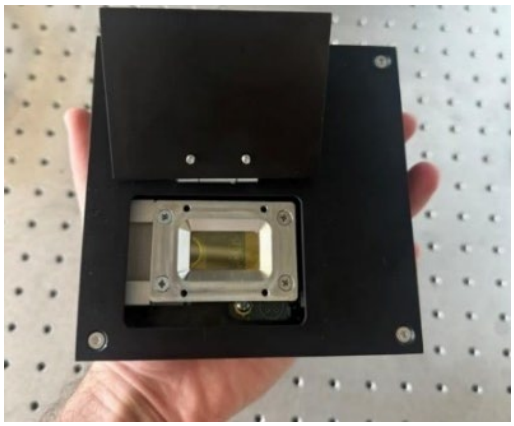
As the symposium brought together food safety and quality researchers and professionals, representing many of PHOTONFOOD's target audiences, it was a perfect opportunity to demonstrate the prototypes developed within the project.

4.4.1 Demonstration of the PHOTONFOOD detection method and devices

The PHOTONFOOD consortium demonstrated the full process from sample preparation of wheat kernels up to the result in the analytic software on the second day of the symposium. First, the scientific background of the method was introduced. Then, the process was implemented together with further explanations. The attendees asked questions about the method and the devices which the researchers from WU and UULM answered.

Figure 4: Impressions from the prototype demonstrations.

Two different devices were developed in the project: the MIFI and the HIFI device. Both were part of the demonstration and their different use cases were explained.



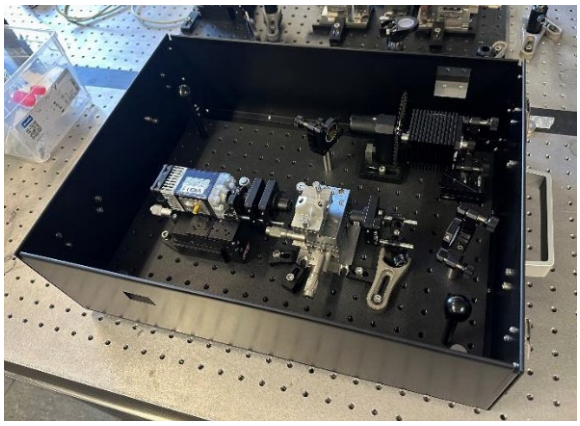


Figure 5: MIFI and HIFI devices and the DSCUSB connection with a computer.

4.4.2 User mapping

The demonstrations were accompanied by a two-step survey conducted by NEBIH to map the user experience with the prototypes (Work Package 1). The attendees filled in the first part of the digital survey after the method was explained and the second part after seeing the process implemented.

Figure 6: Attendees fill in the digital survey about stakeholders' needs.

The results from the user mapping have been analysed and reported in Deliverable D1.4, Overview of User Acceptance and Market Potential. This deliverable summarises the feedback gathered during the demonstrations and provides insights into the participants' perceptions of the prototypes' usability, practicality, and market relevance. These findings are closely linked to Deliverable D1.2, Overview on Technical and User Experiences, which provided initial insights into technical feasibility and user needs, forming the foundation for the user acceptance studies.

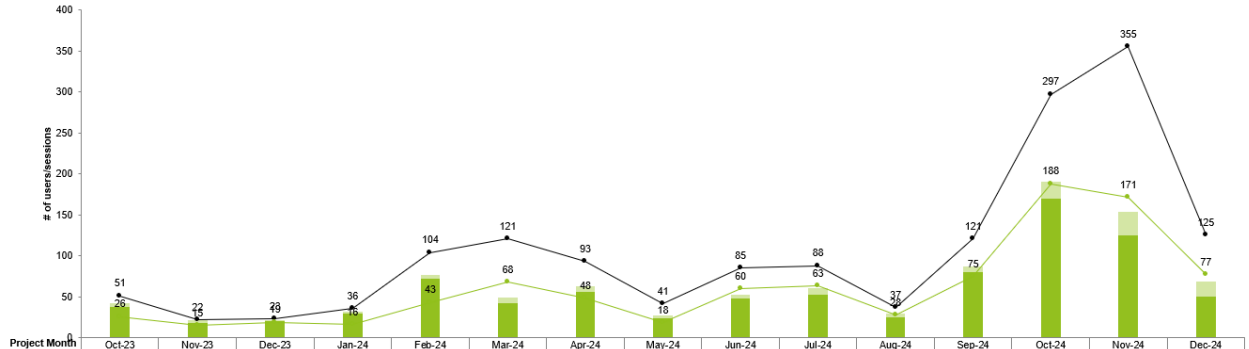
Additionally, the feedback has been synthesised in Deliverable D6.4, Evaluation on Collected Feedback Data, to support the Roadmap for Exploitation. This ensures that user perspectives and experiences are central to the development and future application of the prototypes, bridging technical and market considerations.

5 Evaluation

5.1 Quantitative evaluation

The symposium received 90 registrations, six of which were cancelled before the event. Ten additional ones were no-shows. Considering that the symposium was free of charge and fell into the time of a wave of flu, a 17.7% cancellation- or no-show-rate is to be expected. An overall attendance of 74 participants, mostly from academia and industry, is a success.

The impact of the symposium is clearly visible in the PHOTONFOOD website views. In the months before the symposium, the website users increased from 30 total users in August to 190 total users in October 2024. With 170 and 125 new users in October and November 2024 respectively, there was also a significant increase in people who did not visit the website previously. A peak in sessions was observed both before and during the symposium, with up to 355 sessions.



Project Month	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24
Returning Users	4	3	1	3	5	7	7	3	5	7	5	7	20	28	19
New Users	38	18	20	29	72	42	56	24	48	53	25	80	170	125	50
Sessions	51	22	23	36	104	121	93	41	85	88	37	121	297	355	125
Engaged sessions	26	15	19	16	43	68	48	18	60	63	28	75	188	171	77

Figure 7: The PHOTONFOOD website was visited more often and by new users during the symposium preparation.

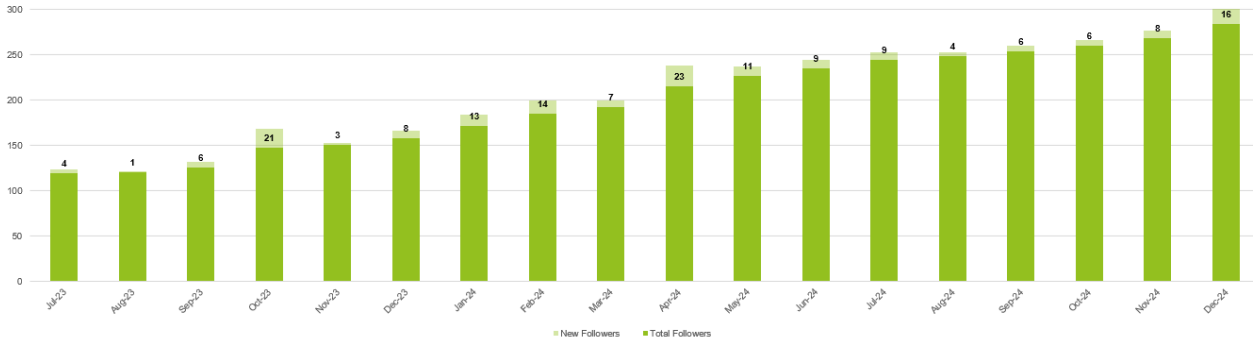


Figure 8: New followers (light green) and total followers (dark green) on the PHOTONFOOD LinkedIn channel.

The effect on the LinkedIn followers was not as high as on the website, but the number of new followers (16 in November) was above average. At the same time, the symposium had a much higher outreach on social media than is visible through only its own channel, as many of the participating projects, speakers and attendees posted on their own channels, sharing news and impressions from the event to their extended network.

The interest and exchange between experts caused by the symposium was not only visible online, but also strongly during the demonstrations: 39 persons attended the live demonstrations and actively participated with questions and feedback.

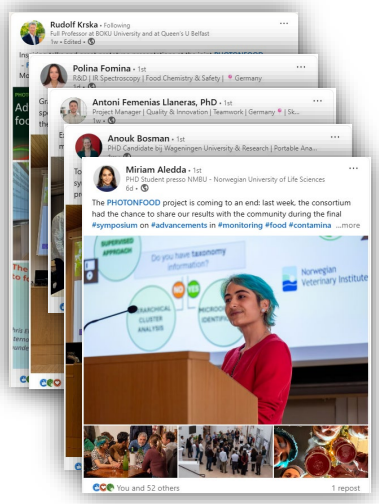


Figure 9: Examples of social media posts by symposium contributors.

5.2 Qualitative evaluation

The organising team all received very positive feedback from contributors and participants of the symposium. Specifically, the choice of topics and speakers was appreciated by several attendees. The organisation and implementation went smoothly, the time plan was mostly kept and allowed sufficient time for questions to the speakers. As networking was another objective of the symposium, it was also positive to observe that attendees and speakers from different organisations mingled and discussed diverse ideas up to the end of the symposium.

5.3 Benefits of collaboration and joint organisation

The widespread collaboration for the symposium substantially influenced the event's success. The joint programme definition, symposium promotion including specific target groups, and communication during and after the symposium greatly increased the quality and reach. Moreover, resources were used efficiently as some of the co-organising projects combined the event with individual project activities such as consortia meetings.

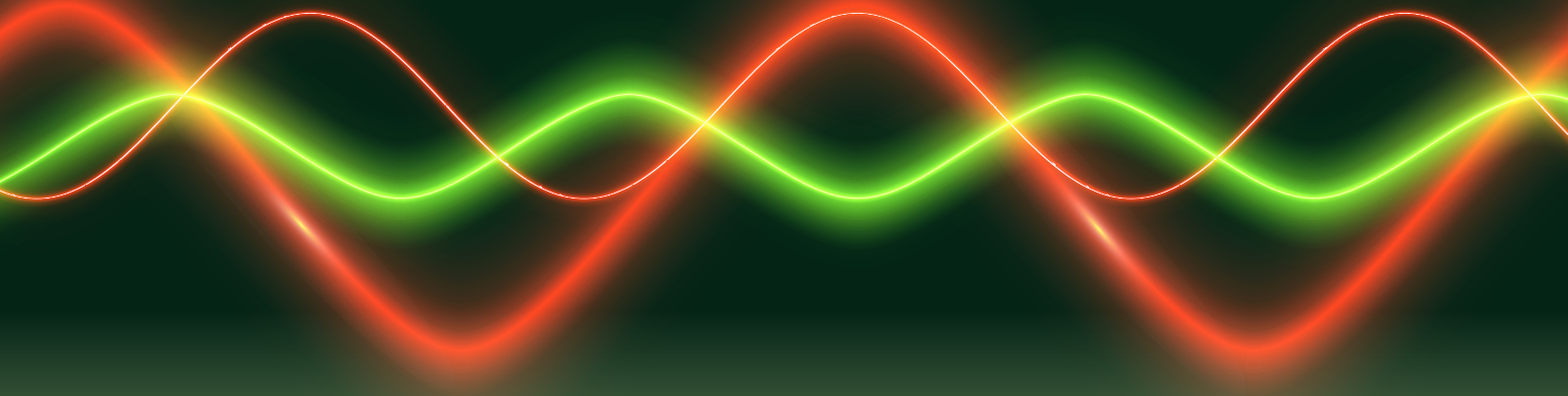
Figure 10: Group photo with the contributors and attendees of the symposium.

Annex 1: Symposium programme

PHOTONFOOD, FoodSafeR and DigiFood Joint Symposium

Advancements in monitoring food contamination and quality

Tulln (Vienna), Austria
27-28 November 2024



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Practical information and registration

Advancements in monitoring food contamination and quality symposium

27-28 November 2024, Tulln (Vienna), Austria

About this event

Join us for the PHOTONFOOD, FoodSafeR, and DigiFood Joint Symposium, taking place in Tulln, Austria, on 27-28 November 2024. This event brings together experts and stakeholders from across the food industry to explore the latest advancements in monitoring food contamination and ensuring quality. Through a series of keynote lectures, flash talks, and interactive sessions, participants will gain valuable insights into emerging challenges, novel technologies, and digital solutions aimed at safeguarding our food supply. Whether you are involved in research, regulation, or production, this symposium offers a unique opportunity to network and collaborate with leaders in the field.

Who should attend this event?

- Food safety and quality researchers
- Food industry professionals
- Regulatory authorities
- Developers of detection technologies, sensors, and digital solutions
- Agricultural and food production organizations

Registration

Attendance is free of charge.
Registration is required online at www.photonfood.eu/symposium/ or through the QR code:

Call for posters

We invite all researchers to submit a poster. Please let us know your topic during the registration.

Symposium location

BOKU University
IFA-Tulln, Konrad-Lorenz-Str. 20,
3430 Tulln an der Donau, Austria

Accommodation and travel information Tulln:
https://boku.ac.at/en/international/themen/international-staff-coming-to-boku/hotels-unterkunft-fuer-gaeste/unterkunft-und-anreise-tulln

Contact

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accelopment®

Co-hosted by

PHOTON FOOD

FOODSAFER EVERYBODY'S BUSINESS

DigiFoods

Organisers

Co-organisers

This symposium is co-organised by PHOTONFOOD, DigiFoods and FoodSafeR with contributions from the recently started BioToxDoc project. Bringing together the expertise of the partners and results from the projects, the symposium attendees will gain insights into the different aspects of monitoring food contamination and quality.

PHOTONFOOD's aim is to provide a portable solution for flexible farm-to-fork sensing of microbial and chemical contamination in food products and along the food production chain. This project will develop an integrated solution that combines innovations in mid-infrared sensing with smart paper-based sample treatment, and advanced data analysis.

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More at photonfood.eu

PHOTONICS PUBLIC PRIVATE PARTNERSHIP

The FoodSafeR project is focusing on the advancement of innovations to combat emerging microbial and chemical food safety hazards and associated risks of contaminants based on cutting edge science. The project is developing a one stop shop suite of future-oriented resources.

This Project has Received funding from the European Union's Horizon Europe Research and Innovation Programme Under Grant Agreement No. 101060698
More at foodsafer.com

Funded by the European Union

DigiFoods (short from Digital Food Quality) is a centre for research-based innovation with the purpose of developing smart sensor solutions for food quality assessment directly in the processing lines, throughout the food value chains.

DigiFoods is part of Centre for Research-based Innovation
More at digifoods.no

Centre for Research-based Innovation

The BIOTOXDoc doctoral training programme aims to develop novel control, mitigation and risk assessment methods for biotoxins and to train doctoral students in a broad range of skills and complementary competencies.

BIOTOXDoc has received funding by the European Research Executive Agency (REA), under the powers delegated by the European Commission (grant agreement No. 101119901) as well as the UK Research and Innovation (UKRI grant EP/Y02964X/1).
More at www.biotoxdoc.eu

Co-funded by the European Union

Co-hosted by

Time	Topic	Speaker
09:00-09:30	Registration and coffee/tea	
09:30-10:00	Opening: Advancements in monitoring food contamination and quality	Achim Kohler, Martin Wagner, Jens Petter Wold, Franz Berthiller
Session 1: Emerging challenges in food safety and quality		**Franz Berthiller**
10:00-10:30	Keynote lecture: The major future challenges to food integrity	Chris Elliott
10:30-10:50	Stakeholder assessment for mycotoxin analysis: exploring demand along the European food supply chain	Gyula Kasza
10:50-11:10	Coffee/tea break	
11:10-11:30	FoodSafeR: Microbiological risk emergence and persistence	Martin Wagner
11:30-11:50	Chemical risk emergence in the area of food safety	Rudolf Krska
11:50-12:10	Flash talks (3x5min)	Paul Williams, Richa Raj, Maryam Dehbasteh
12:10-14:00	Lunch and poster session 1	
Session 2: Novel approaches to ensure food quality and safety		**Martin Wagner, Rudolf Krska**
14:00-14:30	Keynote lecture: Pesticide free commodities, an analytical perspective	Alberto Angioni
14:30-14:50	DigiFoods: How smart spectroscopic sensors contribute to an efficient and sustainable food industry	Jens Petter Wold
14:50-15:10	Microbial source tracking by infrared spectroscopy in aquaponics	Miriam Aledda
15:10-15:30	Towards in-line Raman spectroscopy in the food industry: practical and instrumental aspects	Tiril Aurora Lintvedt
15:30-15:50	Coffee/tea break	
15:50-16:10	Case studies of emerging microbiological hazards	Cintia Mayr
16:10-16:30	BIOTOXDoc: The doctoral training programme to develop novel control, mitigation and risk assessment methods for biotoxins	Franz Berthiller
16:30-16:50	Opportunities in combining paper-based microfluidics with infrared spectroscopy	Anouk Bosman
16:50-17:10	Flash talks (3x5min)	Bijay Kafle, Ids Benjamin Lemmink, Antoni Femenias Llaneras
18:00	Networking dinner	

Time	Topic	Speaker
08:30-09:00	Coffee/tea	
Session 3: Digital solutions		**Gottfried Strasser**
09:00-09:20	Digital solutions	Cristina Fernandez
09:20-09:40	New trends in data analysis of vibrational spectroscopic data of food quality and safety	Uladzislau Blazhko
09:40-10:00	Industrial food process monitoring based on spectroscopic sensors	Lars Erik Solberg
10:00-10:20	Flash talks (3x5min)	Carlos Alonso Ramos, Mehmet Can Erdem, Johannes Ripperger
10:20-10:40	Coffee/tea break	
Session 4: Photonic-based solutions		**Jens Petter Wold**
10:40-11:10	Keynote lecture: Midinfrared cascade based sources and detectors	Gottfried Strasser
11:10-11:40	Keynote lecture: Mid-infrared silicon photonics for sensing	Goran Mashanovich
11:40-12:00	Infrared photonic platforms for on-site mycotoxin screening	Polina Fomina
12:00-12:20	How a fundamental understanding of NIR sensors makes more robust solutions	Vilde Vraalstad
12:20-13:00	Lunch	
13:00-16:00	Poster session 2, demonstrations and networking	

Time	Topic	Speaker
Day 1: 27 November 2024		
11:50-11:55	FoodSafeR: Is turmeric a super-food or a super-fraud	Paul Williams
11:55-12:00	Spatio-temporal distribution of suitable habitats for mycotoxigenic fungi across Europe	Richa Raj
12:00-12:05	Rapid, on-site detection of tropane alkaloids in food using portable surface-enhanced Raman spectroscopy and hyperspectral imaging coupled with AI-driven analysis	Maryam Dehbasteh
16:50-16:55	Portable dry film FTIR system for on-site food quality assessment	Bijay Kafle
16:55-17:00	Paper-based liquid-liquid extraction for direct paper spray mass spectrometry and immuno-detection of atropine in baby food, buckwheat cereals, and edible oils at regulatory levels	Ids Benjamin Lemmink
17:00-17:05	Optimization of extraction solvents for FTIR screening of mycotoxins	Antoni Femenias Llaneras
Day 2: 28 November 2024		
10:00-10:05	SYMPHONY project: Smart photonic sensors combining photonics and electronics	Carlos Alonso Ramos
10:05-10:10	The development of mid-infrared spectrometers using tunable lasers for versatile food quality applications	Mehmet Can Erdem
10:10-10:15	Public funding opportunities in 2025 for your food monitoring research projects	Johannes Ripperger

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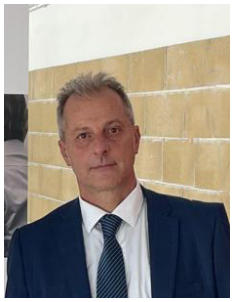
Case study: Fate of pyrrolizidine alkaloids in silage contaminated by toxic weeds	Alessandro Volkov
FoodSafeR: Is turmeric a super-food or a super-fraud	Paul Williams

Prof. **Chris Elliott**, PhD, FRSC, FRSB, MRIA, OBE is the founder of the Institute for Global Food Security at Queen's University Belfast and is a Honorary Professor there now. He is also Professor of Food Security at Thamassat University in Thailand. He has published more than 580 peer review articles relating to the detection and control of agriculture, food and environmental related contaminants. Chris led the independent review of Britain's food system following the 2013 horsemeat scandal. He now acts as a Scientific Advisor for a range of United Nations Agencies, governments and industries on a range of food security topics. Over the years Chris has developed a high level network of collaborators across Europe, the United States , the Middle East and Asia. He is a recipient of a Winston Churchill Fellowship and is an elected Fellow of the Royal Society of Chemistry and Royal Society of Biology. Chris has received numerous prizes and awards for his work such as the Royal Society of Chemistry Theophilus Redwood Prize and an OBE in 2017. He was elected a member of the Royal Irish Academy in 2020 and became Honorary President of the Society of Food Hygiene and Technology in 2023.



Prof. **Alberto Angioni** is a full professor of food chemistry at the University of Cagliari, teaching food chemistry, technology, and analysis. He is responsible for the Laboratory of Chemical Analysis of Food, which is included in the list of regional laboratories.
President of the Italian Group of Plant Protection Products and the Environment, member of the National Committee for Food Safety (CNSA) of the Ministry of Health, and reference person for the University of Cagliari for the evaluation of Dossiers on plant protection products for the Ministry of Health. Prof. Angioni is a member of the Technical Scientific Committee of the "Phytopathological Days" and of the Technical Scientific Committee of the Montiferru Olive Oil Award. Prof. Angioni is a leading figure in the Agrifood sector, where his research focuses on developing original analytical methods for studying plant protection product residues in plant matrices and their derivatives. He also conducts nutritional and toxicological characterization of foods and investigates chemical modifications during technological transformation processes. Prof. Angioni is the author of more than 150 articles in the AgroFood field and is included in the list of Top Italian Scientists.

Gottfried Strasser received his Ph.D. degree in Physics from the University of Innsbruck in 1991. In 1992, he became assistant professor and in 2001 associate professor at the TU Vienna, Austria. In 2007, G. Strasser became full professor at the State University of New York in Buffalo, in 2009 full professor at the TU Vienna. He was heading the QCL research group at the TU Vienna till 2022, established molecular beam epitaxy (MBE) at the institute, and was head of the Center of Micro- and Nanostructures till 2022. He is an internationally renowned expert in III-V semiconductor devices and is author and co-author of more than 700 publications and well above 1000 Conference contributions.

Goran Mashanovich is a Professor of Silicon Photonics at the Optoelectronics Research Centre (ORC), Faculty of Engineering and Physical Sciences, University of Southampton, UK. He has received Dipl. Ing and MSc in Optoelectronics from the Faculty of Electrical Engineering, University of Belgrade, Serbia and PhD in Silicon Photonics and MSc in Innovative teaching from the University of Surrey, UK. He is head of the ORC Mid-IR silicon photonics group. His research interests include both passive and active devices in Si and Ge and their integration for communication and sensing applications. Prof. Mashanovich is author of 500 publications in the field of Silicon Photonics, and he is Fellow of Optica and Senior Fellow of the Higher Education Academy in the UK.

Achim Kohler obtained his PhD in physics in 1998. After his PhD he has been working for 15 years at Nofima, The Norwegian Institute of Food Fisheries and Aquaculture Research in Norway, where he developed vibrational spectroscopy and data analysis techniques for food quality and safety analysis. He is currently a professor in physics at the faculty of Science and Technology at the Norwegian University of Life Sciences. At NMBU Kohler established and is the leader of the BioSpec group that is specialized in developing vibrational spectroscopic techniques and in data science for the analysis of spectroscopic data in life sciences. He is the coordinator of the Green Data Lab at Campus Ås. The Green Data Lab is a hub for research and innovation within data analysis for sustainability. He is coordinator of PHOTONFOOD.

Prof. **Martin Wagner** is a full professor at the Institute for Milk Hygiene, Milk Technology, and Food Science, where he specialises in molecular food microbiology, food safety, and public health. He heads the Christian Doppler Laboratory for Molecular Food Analytics, conducting research focused on molecular detection and differentiation of foodborne pathogens, as well as molecular epidemiology. Prof. Wagner also coordinates research initiatives on food safety and risk analysis, and has contributed to the development of international standards in food hygiene, including the FoodSafeR project.

Dr. **Jens Petter Wold** is a senior research scientist at Nofima AS, Norwegian Food and Fisheries Research Institute, Norway. He has a PhD in Food science and bio-spectroscopy from The Norwegian University of Life Sciences in Ås, Norway. In 2001-2002 he spent one year at Centre for process analytical chemistry (CPAC) in Seattle, WA. He has published more than 100 scientific papers within the field of rapid and non-destructive quality assessment of foods and specializes in fluorescence, near-infrared and Raman spectroscopy, including hyperspectral imaging. He has contributed to a successful in-line NIR hyperspectral imaging system (QVision 500, TOMRA) which is used worldwide for in-line food quality control. Jens Petter is now director of SFI Digital Food Quality (www.digifoods.no), a centre for research driven innovation with the aim of developing smart sensor-driven solutions that deliver the essential food quality information required for successful process optimization and digitalization of the food industry.

Franz Berthiller is Associate Professor at the Department IFA-Tulln of BOKU University, Vienna, and Honorary Professor at the Queen´s University Belfast. He is an expert on liquid chromatography coupled to mass spectrometry. He previously headed the Christian Doppler Laboratory for Mycotoxin Metabolism and currently is the coordinator of the European Doctoral Network BIOTOXDoc. He received numerous scientific awards, including the Fritz-Feigl-Award 2014 from the Austrian Society of Analytical Chemistry or the Appreciation Award of Lower Austria for Science 2018. Franz served as the Chair of the Austrian Society of Toxicology and since 2018 he is also the Editor-in-chief of World Mycotoxin Journal. His scientific output includes 180 international peer-reviewed publications, which were cited well over 10.000 times ever since.

Gyula Kasza is an associate professor and the head of the Department of Applied Food Science at the University of Veterinary Medicine Budapest. He is the founder of WASTELESS, the Hungarian Food Waste Prevention Programme. He is a member of DG SANTE's European Food Loss and Food Waste Platform, a core expert of JRC's European Consumer Food Waste Forum and a national expert of EFSA's Coordinated Communication Network working with the National Food Chain Safety Office, Hungary.

Rudolf Krska is full professor for Analytical Chemistry at BOKU University in Vienna. He is head of the Institute of Bioanalytics and Agro-Metabolomics at BOKU´s Department of Agrobiotechnology IFA-Tulln. 2009/10 he served as A/Chief of Health Canada´s Food Research Division in Ottawa. Since 2017 he has also been Key Researcher at the Austrian Competence Centre for Feed and Food Quality, Safety and Innovation (FFoQSI). Rudolf Krska has received 12 scientific awards and is (co)author of more than 500 SCI publications which have been cited some 22.000 times (h index: 79, Scopus). Another most convincing evidence for the outstanding quality of Prof. Krska´s research work has been his ranking as top 1% highly cited researcher (Web of Science). In 2018, he has become jointly appointed Professor within the Institute for Global Food Security at Queen´s University, Belfast, UK. Prof. Rudolf Krska serves as President of the Austrian Society of Analytical Chemistry and has recently become Honorary Member of the Royal Irish Academy.

Miriam Aledda is a PhD student at the physics faculty in NMBU. She graduated in analytical chemistry in Sapienza University of Rome and is currently working on chemometrics models applied to spectroscopy and new photonics data.

Tiril Aurora Lintvedt is a postdoctoral researcher at The Norwegian Institute of Food Fisheries and Aquaculture Research (Nofima). She works with application development for food quality sensors, with specialization in Raman spectroscopy. Currently, her main work is within the research centre SFI Digital Food Quality (DigiFoods), where the goal is to develop smart sensor solutions directly in the production lines and throughout the food value chains, contributing to a more efficient food industry.

Cintia Mayr is a microbial ecologist with a PhD from the University of Natural Resources and Life Sciences, Vienna, specializing in plant microbiomes. Currently a postdoctoral researcher at the AIT Austrian Institute of Technology, Dr. Mayr contributes to several EU-funded projects focusing on food safety and sustainable agriculture. Her work integrates cutting-edge microbial ecology with practical solutions to advance sustainability in agriculture and food technology.

Anouk Bosman (27 years old) completed a BSc. in Analytical Chemistry and an MSc. in Applied Nanotechnology, during which her academic interests have always been focused on lab-on-a-chip technologies. Currently, Anouk is a PhD candidate at Wageningen University & Research and part of the EU Horizon 2020 PHOTONFOOD project that focuses on flexible mid-infrared photonic solutions for rapid farm-to-fork sensing of food contaminants. Within this project, Anouk's research is concentrated on sample preparation where she exploits 3D printing, paper-microfluidics and mid-infrared detection for fieldable mycotoxin screening in food commodities.

Cristina Fernandez is a Doctor in food science. Her thesis project involved the physicochemical characteristics of emulsions, their preservative potential and biofunctionality. She is experienced in the food and nutraceutical industry for the development of new products and emergent technologies to increase shelf life. Cristina currently writes and manages H2020 and Horizon Europe projects about engineering, science and software.

Uladzislau Blazhko develops deep learning methods for infrared spectroscopy at the BioSpec Norway group at NMBU.

Lars Erik Solberg is a scientist working at The Norwegian Institute of Food Fisheries and Aquaculture Research (Nofima). He both works with chemometrics applied to spectroscopic applications in the industry and with machine learning in relation to aquaculture. For industrial applications, the goal is to provide partners with insight into their processes as well as improving process monitoring.

Polina Fomina graduated with a diploma in 2020 from Lomonosov Moscow State University in the field of Fundamental and Applied Chemistry with specialization in Analytical Chemistry. Her thesis was “Attenuated total reflection Fourier transform infrared spectroscopy for the analysis of aqueous solutions”. She is currently pursuing her Ph.D. research at the Institute of Analytical and Bioanalytical Chemistry of Ulm University under the supervision of Prof. Boris Mizaikoff. Her scientific interests include the development of new technologies based on vibrational spectroscopy methods, food analysis using infrared and Raman techniques, and data analysis.

Vilde Vraalstad is a PhD-student at SINTEF in Norway, within the DigiFoods project, working with applied spectroscopy for food quality assessment. With a background in physics, she explores the fundamentals of NIR spectral measurement solutions, in terms of instrumentation, sample properties, and data analysis. The aim is to achieve more robust sensors that enables measurements under more challenging conditions.