



UNIVERSITY OF RUSE
"ANGEL KANCHEV"



4th Aquaphotomics European Conference

AQPH'2026

23-25 September 2026

University of Ruse

Scientific Research Complex

(Conference Hall)

BULGARIA

P R O G R A M M E



The 4th European Aquaphotomics Conference is organized in cooperation with the University of Ruse "Angel Kanchev" and the International Aquaphotomics Society.

Aquaphotomics is an interdisciplinary scientific field that has increasingly become relevant in Europe, especially with the dynamic changing era of science and its value to life. The goal of this conference is to build upon the rapidly evolving ideas and successes of the past three European Aquaphotomics meetings, bringing together scientists, scholars, students and industrial key players to brainstorm on challenges of mutual interest. This conference provides opportunities for delegates and participants from all over the World to exchange new ideas and experiences, to establish business or research relations and to find new partners for future collaboration.

The conference covers a wide range of topics related to aquaphotomics, spectroscopy, and related fields. Authors are invited to submit papers in the following areas:

- Spectroscopy
- Data Analysis
- Cell and Microbiology
- Food and Agriculture
- Pharmacology/Cosmetics/Medicine
- Light/Sound/Biomodulation
- Coherent states and scale free systems: water, mind and consciousness
- Environmental monitoring
- Biology and Quantum Electrodynamics
- Artificial intelligence and intelligent systems
- Machine learning
- Bioautomatics, bioinformatics and biotechnologies

Scientific Committee:

Honorable Chair:

Academician Hristo BELOEV, DScEng, University of Ruse

Chairpersons:

Prof. Desislava ATANASOVA, PhD, University of Ruse

Prof. Roumiana TSENKOVA, PhD, Kobe University

Prof. Daniel BRATANOV, PhD, University of Ruse

Prof. Zoltan KOVACS, PhD, Hungarian University of Agriculture and Life Sciences

Vice Chair:

Assoc. Prof. Tsvetelina GEORGIEVA, PhD, University of Ruse

Organizing Committee:

Chair: Prof. Daniel Bratanov, PhD, University of Ruse,

Vice Chair: Assoc. Prof. Tsvetelina Georgieva, PhD, University of Ruse

Secretary: Dr. Eleonora Nedelcheva, University of Ruse

Members:

Prof. Roumiana Tsenkova, PhD, Kobe University

Prof. Stefka Atanasova, PhD Trakia University

Assoc. Prof. Petya Veleva, PhD, Trakia University

Tiziana Cattaneo, University of Milan

Prof. Zoltan Kovacs, PhD, Hungarian University of Agriculture and Life Sciences

Prof. Boris Evstatiev, D.Sc., University of Ruse

Prof. Plamen Daskalov, PhD, University of Ruse

Prof. Todor Stoyanchev, PhD, Trakia University

Assoc. Prof. Seher Kadirova, PhD, University of Ruse

Assoc. Prof. Stanislav Penchev, PhD, University of Ruse

Dr. Flóra Vitális, PhD, Hungarian University of Agriculture and Life Sciences

Assoc. Prof. Tanya Titova-Kosturkova, PhD, Technical University - Sofia

Assoc. Prof. Georgi Komitov, PhD, Technical University - Sofia

Conference Programme

<i>23 September 2026</i>	
14:00 - 15:30	Registration desk opens
15:30 - 16:00	Official Opening of AQPH'26
16:00 - 17:30	Plenary Speakers Chair: Tsvetelina Georgieva
	 Prof. Dr.Eng., Dr.Agr., Roumiana Tsenkova Anharmonic Near Infrared Light Water Interaction as a Framework for Studying Collective Dynamics
	 Dr. Anirban Bandyopadhyay Aquaphotomics Across Scales: From Protein Hydration and Interfacial Water to Deep Groundwater and Environmental Dynamics
	 Eng. Aleksandar Boykov Stoilov From Molecule to Meaning ...
17:30	Welcome Cocktail

24 September 2026		
9:00 - 10:00	Registration desk opens	
9:30 – 10:30	Plenary Speakers Chair: Plamen Daskalov	
		Prof. Zoltan Kovacs Potential of NIRS and Aquaphotomics in Food Authenticity Across the Supply Chain and Beyond
		Prof. Stefka Atanassova NIRS and Aquaphotomics for plant stress detection and food control
10:30 – 10:50	Coffee break	
10:50 – 12:30	Scientific Session Chair: Stanislav Penchev	
	31	Vacuum dressing of collective water response and biological hydration <i>Nassim Hamein, William Brown</i>
	2	Aquaphotomics-Based Characterization of Depth-Related Water Structural Organization in Deep-Ocean Water <i>Takaharu Sasaki, Yoko Osafune, Wakana Yoshida, Alexander Stoilov, Shogo Shigeoka, Tamae Takada, Kayoko Okuzako, Roumiana Tsenkova</i>
	4	Aquaphotomics-based real-time endpoint detection for red kidney bean soaking using NIR spectroscopy of soaking water <i>Mercy Barasa</i>

	6	Mapping fortification-activated absorbance bands in fruit juices using near-infrared spectroscopy and aquaphotomics <i>Flora Vitalis</i>
	3	Aquaphotomics skin classification based on hydration and TEWL assessment <i>Wakana Yoshida, Roumiana Tsenkova, Takaharu Sasaki, Kayoko Okuzako, Yoko Osafune, Tamae Takada</i>
12:30 – 14:00	Lunch Time	
14:00 – 14:40	Plenary Speaker Chair: Seher Kadirova	
		Dr. Anastasiia Surkova Aquaphotomics in biomedicine: from diagnostics to regenerative medicine. (online)
14:40 – 15:20	7	Water Spectral Pattern Changes Associated with Ochratoxin A Contamination in White Wine <i>John-Lewis Zaukuu</i>
	19	Approach for Predicting the Content of Heavy Metals in Honey using Spectral Analysis and Regression Methods <i>Tsvetelina Georgieva, Eleonora Nedelcheva, Stanislav Penchev, Magdalena Kachel, Ivaylo Hristakov, Atanas Atanasov, Plamen Daskalov</i>
15:20 – 15:40	Coffee break	
15:40 – 17:00	Scientific Session Chair: Stefka Atanassova	
	14	Investigation of the chemical composition and bioactivity of extracts from herbs <i>Togzhan Zhomartkyzy, Gulzhan Zhumaliyeva</i>

	13	Water as a Probe of Food Structure: Insights into Saccharide Hydration and Hydrogel Network Evolution from High-Intensity Terahertz Spectroscopy <i>Mark Justine Zapanta, Fabio Novelli, Wouter Saeys</i>
	17	Application of nirs and aquaphotomics to study the influence of zeolite in soils on water structure in tomato plants <i>Antoniya Petrova, Zornitsa Zherkova, Petya Veleva, Lyudmila Angelova, Adriana Surleva, Elena Koleva, Stefka Atanassova</i>
	15	Synergistic ultrasonic-assisted curing of Kazakh Whitehead cattle hides using reduced-salt brine and Artemisia extract <i>Torgyn Zhumaliyeva, Gulmira Kenenbay, Rabiga Kassymbek, Urishbay Kenenbay, Alibek Tursunov</i>
19:30	Conference Dinner	
25 September 2026		
9:30 – 10:00	Plenary Speaker Chair: Georgi Komitov	
		Eng. Aleksandar Boykov Stoilov AquaGrammar - Reading the Language of Water in Spectra. The new tool “AquaGrammar” for exploration, evaluation and education in Aquaphotomics
10:00 – 11:00	25	Methodology for the Control of Parameters in a Bioreactor for Carbon Dioxide Capture <i>Georgi Komitov, Polya Dobрева, Vasil Georgiev, Veselin Mengov</i>
	26	Species composition and biodiversity of entomofauna in maize (Zea mays L.) crops in Northeastern Bulgaria <i>Angel Ivanov</i>
	27	Sanctuary, Science, and Stewardship: Unpacking the Multifunctional Spectrum of Bulgarian University Botanical Gardens in Biodiversity Conservation <i>Angel Ivanov, Petia Ivanova</i>

	32	Assessment of phenological development in maize by derivative spectroscopy in the visible spectrum <i>Svetoslav Petrov, Tsvetelina Georgieva, Plamen Daskalov, Naila Allakhverdiyeva</i>
11:00 – 11:20	Coffee break	
Online Session (Online participants receive their joining details by e-mail)		
11:20 – 12:30	Scientific Session Chair: Seher Kadirova	
	23	Bidirectional palmar water-related spectral state transitions during virtual visual motion: formation kinetics and post-task trajectories <i>Takehiko YAMAGUCHI, Shuhei TANIOKA, Kentaro KOTANI, Takaharu SASAKI, Roumiana Tsenkova</i>
	18	A Hybrid CNN-LSTM Approach for Intelligent Crop Disease Detection and Agricultural Yield Prediction <i>Seher Kadirova, Riaz Israni, Hacer Tekin, Amit Lathigara, Katerina Gabrovska-Evstatieva</i>
	30	NIR Aquaphotomics as a Novel Approach to Evaluate Soil Properties <i>Lashya Manage, Aleksandar Stoilov, Shogo Shigeoka, Roumiana Tsenkova</i>
	16	A VIS-NIR AS7341-Arduino Biosensing System <i>Elena Tolstosheeva</i>
	10	Telecare in Bulgaria: the need for a unified national technical infrastructure <i>Maria Radeva</i>
12:30 – 14:00	Lunch Time	
Online Session (Online participants receive their joining details by e-mail)		
14:00 – 15:30	Scientific Session Chair: Stanislav Penchev	
	8	Aquaphotomics in product development: developing a NIRS method to facilitate the taste-masking of aqueous dietary supplements <i>Matyas Lukacs, David Nedeljkovic, Milan Vranes, Zoltan Kovacs</i>

	20	Beef meat quality evaluation by application of hyperspectral images, NIRS, and computed tomography <i>Todor Stoyanchev, Aleksandra Daskalova, Stefka Atanasova</i>
	24	Application of NIRS and Aquaphotomics to Discriminate Honeydew, Monofloral, and Polyfloral Honey Varieties <i>Simeon Uzunov, Tsvetelina Georgieva, Petya Veleva</i>
	29	Assessment of used engine motor oil using spectral data analysis <i>Tsvetelina Georgieva, Georgi Komitov, Svetoslav Petrov</i>
	33	Applications of Aquaphotomics in Scientific Research and Monitoring in Plant Production <i>Jasmina Krasteva, Tsvetelina Georgieva, Plamen Daskalov</i>
	28	Egg quality assessment using spectral analysis and aquaphotomics techniques <i>Aleksandar Stoilov, Emil Stefanov, Tsvetelina Georgieva, Plamen Daskalov</i>
15:30 – 15:45	Closing of AQPH'26	