



The 3rd Aquaphotomics International Symposium

December 2 - 6, 2018

Awaji Yumebutai International Conference Center (Reception Hall B)

SYMPOSIUM PROGRAM

SUNDAY December 2, 2018

12:00 REGISTRATION OPEN

AQUAPHOTOMICS WORKSHOP I

Chairperson: Roumiana Tsenkova

13:00 14:00 Open for public lecture: Aquaphotomics introductory course (bilingual, Japanese & English)

Roumiana Tsenkova

14:00 14:30 Coffee break

AQUAPHOTOMICS WORKSHOP II

Chairperson: Jelena Muncan

14:30 15:30 A Poor Man's Guide to AquaPhotomics: Analysis of Variance in Near-Infrared Spectra of Water

Dusan Kojic

15:30 16:30 Removing interference signal from NIR spectra

Ali Gahkani

16:30 17:00 Coffee break

17:00 18:00 Aquaphotomics multivariate analysis tools - aquap2

Zoltan Kovacs & Bernhard Pollner

18:00 19:00 Chemometric tools for aquaphotomics

Federico Marini

19:00 21:00 Welcome reception

MONDAY December 3, 2018

OPENING

9:00 9:30 Why Aquaphotomics?

Chairperson: Roumiana Tsenkova

Roumiana Tsenkova

X-RAY AND UV-SPECTROSCOPY

9:30 10:00 Water – from clusters to nanoconfinement to the bulk

Chairperson: Roumiana Tsenkova

Craig Schwartz

10:00 10:30 FUV spectroscopic investigations for water and aqueous solutions

Yusuke Morisawa

10:30 11:00 Coffee break

CHEMOMETRICS

11:00 11:30 Extracting quantitative information from temperature dependent near infrared spectra

Chairperson: Federico Marini

Xueguang Shao

11:30 11:50 Mathematical modeling of phenomenology

Yasue Mitsukura

11:50 12:10 Covariance weighting in aquaphotomics

Ali Gahkani

12:10 12:30 Spectral component analysis

Dusan Kojic

12:30 13:00 **3min CAPSULE POSTER PRESENTATIONS I**

Moderator: Everine van de Kraats

13:00 14:00 Lunch Break

THZ SPECTROSCOPY

Chairperson: Yuichi Ogawa

14:00	14:30	Terahertz spectroscopy of water	Koichiro Tanaka
14:30	14:50	Reconsideration of the relaxational line shape of liquid water based on ultrabroadband dielectric spectroscopy	Keichiro Shiraga
14:50	15:10	Structure and dynamics of bound water in polymer film studied by THz spectroscopy	Hirromichi Hoshina
15:10	15:30	Development of 60 GHz near-field array sensor	Yuichi Ogawa (session organiser)
15:30	15:55	Coffee break	
15:55	16:00	5min relaxation session	Esther Sorgenfrei Blom

APPLICATIONS

Chairperson: Zoltan Kovacs

16:00	16:30	Recent trend in NIR spectroscopy including quantum chemistry and 2D-COS and its future potential for aquaphotomics	Christian Huck*
16:30	16:50	Variation of near-infrared spectrum of water upon dissolution of various solutes	Masao Takayanagi
16:50	17:10	Aquaphotomics for investigating water physics and functionality	Everine Van De Kraats
17:10	17:30	Opening the black box of NIR prediction for sugar content of fruits: a complementary analysis by aquaphotomics and metabolomics	Akifumi Ikehata
17:30	17:50	Meat freshness estimation - aquaphotomics approach	Stefka Atanassova

PLENARY SESSION

Chairperson: Everine van de Kraats

17:50	18:30	Aquaphotomics international assembly	All participants
19:00	21:00	Night Tour: Miracle Planet Museum of Plants (Kiseki no Hoshi no Syokubutukan) (Admission: 480 yen. Last entry: 20:30)	

TUESDAY December 4, 2018

BASIC SCIENCE

Chairperson: Roumiana Tsenkova

- 9:00 9:30 "Nano-ice" forms in cold water and causes the density maximum anomaly
- 9:30 9:50 Analysis of interaction between glucose anomers and water molecules
- 9:50 10:10 Water molecular structure behind water activity: investigating on chemical modifications of rice germ during storage

Hiroo Hamaguchi

Sae Tanaka

Cristina Malegori

10:10 10:40 Coffee Break

BIOMEDICAL APPLICATIONS

Chairperson: Dusan Kojic

- 10:40 11:10 Applications of aquaphotomics in biodiagnostics, biomeasurements and biomonitoring
- 11:10 11:30 QiShenYiQi Pills®, a compound chinese medicine attenuates cardiac microvascular permeability induced by ischemia/reperfusion in rats

Jelena Muncan

Jing-yan Han

11:30 12:30 **3min CAPSULE POSTER PRESENTATIONS II**

Moderator: Everine van de Kraats

12:30 14:00 Lunch Break and Posters

INTERMEDIATE WATER AND POLYMERS

Chairperson: Shigeaki Morita

- 14:00 14:30 Design of soft-biomaterials based on the interfacial water structure for advanced medical devices

Masaru Tanaka

14:30	14:50	Hydration structure of intermediate water in biomaterials investigated by infrared spectroscopy	Shigeaki Morita (session organiser)
14:50	15:20	RIXS study on hydrogen bonding network of water at interfaces	Yoshihisa Harada
15:20	15:40	Interfacial water endowing materials with bioinertness	Tomohiro Hayashi
15:40	16:00	Polymer structure in water studied by THz-Raman spectroscopy	Harumi Sato
16:00	16:25	Coffee Break	
16:25	16:30	5min Relaxation Session	Esther Sorgenfrei Blom

AQUAPHOTOMICS IN PRACTICE: YUNOSATO SPA JAPAN

16:30	16:37	Water quality control monitoring	Chairperson: Zoltan Kovacs Mitsue Oshima
16:37	16:44	Aquaphotomics and hydroponics	Ryo Takagi
16:44	16:51	Investigation of water structure by NIRS and aquaphotomics	Alexander Stoilov

WATER ROLE IN HEALTH

16:55	17:25	Water biology and medicine: roles of aquaporins (AQP)	Chairperson: Jelena Muncan Masato Yasui
17:25	18:40	The fourth phase of water: a central role in health	Gerald Pollack

19:00	21:00	Banquet	
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WEDNESDAY December 5, 2018

NEW HORIZONS

9:00	9:20	A brief story of the theory of torsion field and technology, resulting from it (an attempt to explain some of water anomalies)
9:20	9:40	What we can learn about water from vibrational spectroscopy
9:40	10:00	Mechanisms of storing energy and information in water
10:00	10:20	Evaluation of water or water containing liquids on their form-giving characteristics
10:20	10:50	Coffee Break

Chairperson: Roumiana Tsenkova

Bozhidar Paliushev

Antonella de Ninno

Livio Giuliani

Rasmus Gaupp-Berghausen

WATER & ELECTROMAGNETIC WAVES

10:50	11:20	Microwave and optical bioelectrodynamics at the nanoscale and molecular level
11:20	11:40	Introducing electromagnetic information transfer through aqueous system
11:40	12:00	DireWaves: Disarming resistant microbes with resonant waves
12:00	12:15	Investigating aquaphotomics for fruit quality assessment

Chairperson: Antonella de Ninno

Michal Cifra

Alberto Foletti

Nikolaj Blom

Harpreet Kaur

12:15 12:30 **CLOSING SPEECH & BEST POSTER AWARD**

Roumiana Tsenkova

12:30 ~ EXCURSION: YUNOSATO JAPANESE SPA, WAKAYAMA

17:00 ~ WRAP UP DISCUSSION AT YUNOSATO SPA

THURSDAY December 6, 2018

9:00 ~ EXCURSION: MOUNT KOYA

* The invitation is supported by The Naito Foundation.