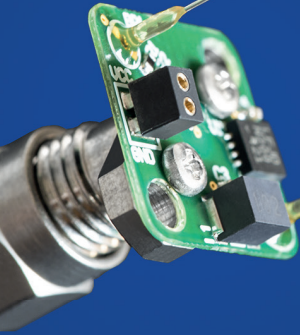


www.itis.ethz.ch/pem2017



Program

PEM2017

2nd International Workshop on
Photonics Applied to
Electromagnetic Measurements

5 – 6 October 2017, Zurich, Switzerland

IT^{IS} FOUNDATION

WELCOME

The Foundation for Research on Information Technologies in Society (IT²IS) warmly welcomes you to Switzerland for the 2nd International Workshop on Photonics Applied to Electromagnetic Measurements – PEM 2017!

The PEM workshop, initiated by the PEM Technical Committee of the Japanese Institute of Electronic, Information and Communication Engineers (IEICE), is an international workshop devoted to the research, development, and application of photonics in electromagnetic (EM) measurements and closely related fields. After the success of the first workshop held in Tokyo, Japan, in 2015, this second edition is being organized by the IT²IS Foundation, led by Prof. Niels Kuster, with support from Prof. Hiroshi Murata of Osaka University, the chair of the IEICE PEM Technical Committee.

The workshop scope ranges from basic theory/techniques of photonics-applied EM measurement and closely related technologies to new applications and devices. The exciting 2-day program features invited talks and keynote lectures, including a special session on biomedical applications of photonics-applied EM measurement. Other original work related to target conference topics will be presented in oral and poster presentations. Participants will also have the opportunity to take part in a tour of the state-of-the-art IT²IS laboratory facilities at Zurich43. Finally, there will be plenty of opportunities to network and to discuss current work and future developments with colleagues in a stimulating, interactive, and interdisciplinary environment.

PEM2017 has received generous support from several sponsors (see page 14) to organize this workshop, and we are grateful and excited about the opportunity to host this event in the heart of Zurich.

Important Information

Emergency: 144

Police: 117

Zurich Public Transport: www.zvv.ch / www.sbb.ch

Taxis: +41 44 777 77 77, +41 44 444 44 44

Conference website: www.itis.ethz.ch/pem2017

Conference email: pem2017@itis.ethz.ch

WiFi: Volkshaus

Venue

Volkshaus

White Room: Oral Sessions

Blue Room: Poster Session / Exhibitors

Stauffacherstrasse 60

8004 Zurich

Tel: +41 44 241 64 04

www.volkshaus.ch

WORKSHOP COMMITTEE

Co-chairs

Prof. Dr. Niels Kuster

ETH Zurich and IT'IS Foundation, Switzerland

Prof. Dr. Hiroshi Murata

Osaka University, Japan

Local Organizers

Dr. Patricia L. Bounds

IT'IS Foundation, Switzerland

Dr. Mariana Ricca

IT'IS Foundation, Switzerland

KEYNOTE AND INVITED SPEAKERS

Dr. Myles Capstick

IT'IS Foundation, Switzerland

Prof. Dr. Shintaro Hisatake

Gifu University, Japan

Dr. Saturo Kurokawa

National Institute of Advanced Industrial Science and Technology, Japan

Dr. Benjamin Loader

National Physical Laboratory, United Kingdom

Prof. Dr. Lukas Novotny

Swiss Federal Technical Institute Zurich, Switzerland

Prof. Dr. Sze Yun Set

University of Tokyo, Japan

Dr. Kanako Wake

National Institute of Information and Communications Technology, Japan

PROGRAM THURSDAY 5. 10. 2017

08:40	OPENING REMARKS	N. Kuster H. Murata
09:00	KEYNOTE Antenna measurement using PEM technologies	S. Kurokawa
	SESSION 1 Basic theory and techniques of photonics applied to EM measurements	Chairs: S. Kühn S. Hisatake
10:00	Invited Optical sampling with a picosecond pulsed laser and its application to high-speed time-domain E-Field sensing	S. Y. Set
10:40	Coffee Break (Blue Room)	
11:00	Coherent detection of THz-wave by parametric up-conversion at room temperature	S. Hayashi* Y. Uzawa
11:20	Remote operating point control of Mach Zehnder interferometer-based photonic E-field sensors by power-over-fiber	J.E. Toney* A. Pollick V. E. Stenger S. Sriram
11:40	Broadband horn antenna calibration using optical fiber-link port extender for vector network analyzer	S. Matsukawa* S. Kurokawa M. Hirose M. Ameya Y. She Y. Toba M. Onizawa J. Ichijo
12:00	Antenna design for electric/optical sensors with high sensitivity	Q. Chen
12:20	Lunch	

THURSDAY 5. 10. 2017

	SESSION 2 Photonics applied to EM measurement systems and new applications	Chairs: M. Ameya B. Loader
13:20	Invited Photonic measurement technology for electrically small antennas	M. Capstick
14:00	Accurate frequency measurement of THz radiations by electrooptic sampling using a modulator-based optical comb generator for frequency stabilization of CW-THz sources	I. Morohashi* M. Kirigaya I. Katayama Y. Irijmajiri T. Sakamoto N. Sekine A. Kasamatsu I. Hosako
14:20	Removing the cable effect from antenna correlation measurements with an RF-over-fiber link	S. Kühn* B. Kochali A. Tonini Niels Kuster
14:40	Reflection property measurement of skin in THz range using spectrometer with photoconductive antennas	M. Mizuno* K. Sasaki S. Watanabe
15:00	Coffee Break (Blue Room)	
15:20	POSTER SESSION (Blue Room)	
17:00	IT'IS LAB TOUR and Aperó	
19:00	Transfer by public transport to Jurablick Restaurant	
19:30	SOCIAL DINNER at Jurablick Restaurant	

* Presenting author

PROGRAM FRIDAY 6. 10. 2017

08:40	KEYNOTE	Controlling light-matter interactions on the nanometer scale	L. Novotny
09:40	Invited	Development of optically-based sensors for E-field measurement	B. Loader
10:20	Coffee Break (Blue Room)		
	SESSION 3	New technologies in photonics applied to EM measurements	Chairs: M. Capstick M. Mizuno
10:40	Invited	Photonics-based millimeter and THz-wave visualization techniques for industrial applications	S. Hisatake
11:20		94-GHz IQ radar system using an optical FM-CW signal generator	A. Kanno* N. Sekine A. Kasamatsu K. Fukunaga N. Yamamoto T. Kawanishi
11:40		Development of GHz-band optical E-field sensor calibration system in NMIJ	M. Ameya* S. Kurokawa
12:00		Development of electro-optic chromophores and polymers for applications to THz-wave generation and detection	T. Yamada* T. Kaji I. Aoki Y. Takagi C. Yamada M. Mizuno S. Saito A. Otomo
12:20	Lunch		

FRIDAY 6. 10. 2017

	SESSION 4	Biomedical applications of photonics applied to EM measurements	Chairs: A. Kanno E. Zastrow
13:20	Invited	Measurement of E-fields from devices in intermediate frequencies using an optical sensor	K. Wake
14:00		Non-invasive temperature elevation measurement under millimeter wave exposure with transparency phantom including micro-encapsulated thermo-chromic liquid crystals	Y. Suzuki
14:20		Silicon photonic resonator for sensitive bio-sensing applications	U. Mankong* N. Itthipratheep S. Udomsom T. Umezawa A. Matsumoto N. Yamamoto
14:40		Microphotonic voltage probe used in MRI environments for medical implant immunity testing	S. Kühn* L. Ponato O. Munz M. Cabanes N. Kuster
15:00	AWARDS AND CLOSING		N. Kuster H. Murata

* Presenting author

POSTERS

Blue Room

1. Antenna gain measurement system for extrapolation method using optical fiber-link technologies
Y. She, S. Kurokawa*, M. Hirose, and M. Ameya
2. Recent standardization activities for radio-over-fiber transmitter within IEC TC103 WG6 in 2017
S. Kurokawa*, M. Ameya, J. Ichikawa, H. Ogawa, A. Kanno, and T. Kawanishi
3. Generation and control of nonlinear and quantum optical effects
A. C. Amaro de Faria Jr
4. Sensor based on an optical diffraction network
A. C. Amaro de Faria Jr
5. Array-antenna electrode electro-optic modulators operating in 80 GHz band using low-dielectric-constant and low-loss fluorine-based resin substrate
S. Yamasaki, T. Inoue, S. Hidehisa, A. Sanada, S. Kiya, M. Nakabayashi, K. Murata, and H. Murata*
6. Performance evaluations of surgical energy devices using microwave and radio frequency current
K. Saito*, M. Sugiyama, and R. Manago
7. Non-destructive inspection of buried pipeline composed of fiber-glass-reinforced plastic mortar using electro-optic sensor and microwave guided-modes
Y. Azuma, F. Ueno, H. Murata*, A. Sanada, T. Okuda, and M. Hazama

* Presenting author

VENUES

IT'IS

The independent, nonprofit Foundation for Research on Information Technologies in Society (IT'IS) is dedicated to improving and advancing the quality of people's lives by expanding the scientific basis of the safe and beneficial applications of EM energy and information technologies. Since its establishment in 1999, through the initiative and support of, among other entities, the Swiss Federal Institute of Technology (ETH) Zurich, IT'IS has gained a worldwide reputation as a research center of excellence in i) computational life sciences, iii) exposure assessments/safety/compliance evaluation and iii) EM sensor technologies and exposure systems with state-of-the-art laboratory facilities. IT'IS, together with Schmid & Partner Engineering AG (SPEAG) and ZMT Zurich MedTech AG (ZMT), forms the Zurich43 alliance.

www.itis.ethz.ch

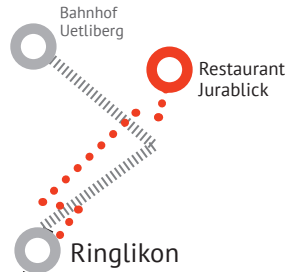
VOLKSHAUS

The Volkshaus – The People's House – is located in Zurich's historic Aussersihl quarter, noted for its importance during the Swiss labor movement. The Volkshaus opened in late 1910 with offices and restaurant, and with public bathing facilities in the cellar. In 1924, the Volkshaus was enlarged to include a 1200-seat theater room and additional offices. During the First World War, Vladimir Lenin lived in Zurich, where he finished writing his seminal book "Imperialism as the Highest Stage of Capitalism", in part supporting himself with political speeches at the Volkshaus. The Volkshaus continues to be a focal point for political assembly, cultural and scientific events, and the theater is an important Zurich venue for top-billed music and comedy acts.

www.volkshaus.ch

IT'IS → JURABlick RESTAURANT

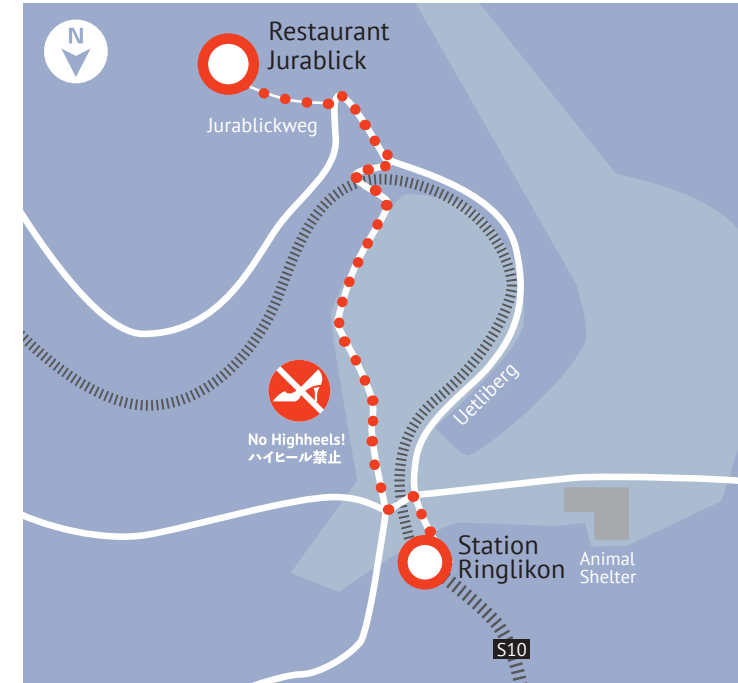
S10
Selnau - Ringlikon
 19:06
 19:36
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S10
Ringlikon - Zurich
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 22:40
 23:10
 23:40 (last train / 最終)
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