

4th International Workshop on Image Sensors and Imaging Systems (IWISS2018)

-Frontier of image sensors based on conceptual breakthroughs inspired by applications-

Sponsored by Group of Information Photonics (IPG) +CMOS Working Group, the Optical Society of Japan

Co-sponsored by International Image Sensor Society (IISS) and Technical Group on Information Sensing Technologies (IST), the Institute of Image Information and Television Engineers (ITE)

In cooperation with IEEE SSCS Japan Chapter and innovative Photonics Evolution Research Center (iPERC)

Date: November 28 (WED) and 29 (THU), 2018

Venue: Tamachi Campus, Tokyo Institute of Technology

Access: see Tamachi Campus at <http://www.titech.ac.jp/english/maps/index.html>

Address: 3-3-6 Shibaura, Minato-ku, Tokyo, 108-0023 JAPAN

Official language: English

The latest information of registration, poster paper submission, and advance program:

<http://www.i-photonics.jp/meetings.html#20181128IWISS>

Overview: In this workshop, people from various research fields, such as image sensing, imaging systems, optics, photonics, and image processing, come together to discuss the future and frontiers of image sensor technologies. For the continuous progress and diversity in the engineering of image sensors and imaging systems, state-of-the-art and emerging technologies will be explored. The symposium is composed of invited talks, a poster session, and reception. **We are accepting approximately 20 poster papers. Submission of papers for the poster presentation starts in July, and the deadline is on October 5, 2018.** Awards will be given to the selected excellent papers presented by ITE members. We encourage everyone to submit latest original work. **Every participant needs pre-registration by November 9, 2018. On-site registration is NOT accepted.** Only poster session is an open session organized by ITE.

Scope:

- Image sensor technologies: process, circuit, architecture
- Imaging systems and image sensor applications
- Optics and photonics: nanophotonics, plasmonics, microscopy, spectroscopy
- Computational imaging and computational photography
- Any applications and related topics of image sensors and imaging systems:
Multi-spectral imaging, ultra-fast imaging, biomedical imaging,
IoT, VR, deep learning,...

General Chair: Keiichiro Kagawa (Shizuoka Univ., Japan)

Vice Chair: Takayuki Hamamoto (Tokyo Univ. of Science, Japan, Chair of IST, ITE)

Hirotsugu Yamamoto (Utsunomiya Univ., Japan, Chair of IPG, OSJ)

Technical Program Committee:

Shoji Kawahito (Shizuoka Univ., Japan), Takashi Komuro (Saitama Univ., Japan), Hajime Nagahara (Osaka Univ., Japan), Atushi Ono (Shizuoka Univ., Japan), Min-Woong Seo (Samsung Electronics, Korea), Hiroyuki Suzuki (Tokyo Institute of Tech., Japan), Nobukazu Teranishi (Shizuoka Univ./Univ. Hyogo, Japan), and Keita Yasutomi (Shizuoka Univ., Japan)

Join and enjoy the workshop!

Online registration for audience and poster presenters:

Registration is necessary because the number of seats is limited. **Registration deadline is Nov. 9.**

Register and pay online from the following website, which will open around **Aug. 10:**

https://sympo.adthree.net/iwiss2018/participant/participant_regist.php

Registration fee:

Regular: 15,000-yen (~137USD)

Student: 8,000-yen (~73USD)

Reception party on the 1st day:

Regular: 5,000-yen (~46USD)

Student: 3,000-yen (~28USD)

Paper submission to the poster session:

Entry your paper at the following URL:

https://www.ite.or.jp/ken/form/index.php?tgs_regid=087c5280195ec72d7d2841c8805a0eccc22f8ed737965ec60e99821155ad5293&tgid=ITE-IST&lang=eng

(Use the above English page. **DO NOT follow the Japanese instructions at the bottom of the page.**)

Paper entry deadline: Oct. 5(Fri), 2018 (Only title, authors, and short abstract are required)

Manuscript submission deadline: Nov. 2 (Fri), 2018 (2-page English proceeding is required)

A few excellent posters presented by ITE members will be awarded.

Please consider to become a member of ITE before the workshop.

NOTE) Poster presenters need online registration to attend IWISS2018 !

https://sympo.adthree.net/iwiss2018/participant/participant_regist.php

Collaboration with MDPI Sensors Special Issue

Special Issue on Advanced CMOS image sensors and Emerging Applications

Paper submission deadline: Feb. 28, 2019

http://www.mdpi.com/journal/sensors/special_issues/CMOSImageSensors

The poster presenters are encouraged to submit a paper to this special issue!

Note-1) Those who do not give a presentation in the IWISS2018 poster session are also welcome to submit a paper!

Note-2) Sensors is an open access journal, the APC of 1800CHF will be applied to accepted papers.

Note-3) For poster presenters of IWISS2018, please satisfy the following conditions.

The submitted papers to the special issue have to be different from the proceeding papers. They should have about 50% new data/content extension to make it a real and complete journal paper. It will be much better if the Title and Abstract are different with that of conference paper, so that they can be differentiated in various databases.

Sensors (ISSN 1424-8220; CODEN: SENSC9) has an Impact Factor of 2.475 (2017) and the 5-Year Impact Factor of 3.014 (2017) and is covered by the following indexing and abstracting databases: Analytical Abstracts, Chemical Abstracts (CAS), Chemistry Citation Index, Directory of Open Access Journals (DOAJ), IndexCopernicus, Google Scholar, INSPEC, Journal Citation Report, Open-J-Gate, PubMed, Science Citation Index Expanded (SCIE), Scirus, SciSearch and Scopus.

Program:

Nov. 28 (WED)

9:00 Registration opens

9:50-10:00 Opening remarks by Keiichiro Kagawa (Shizuoka Univ., Japan)

10:00-12:10 Time-resolved imaging (130-min) **Chair:** Keiichiro Kagawa (Shizuoka Univ., Japan),
Hajime Nagahara (Osaka Univ., Japan)

10:00-10:50 [Plenary] Time-of-flight single-photon avalanche diode imagers by Franco Zappa (Politecnico di Milano, Italy)

10:50-11:30 [Invited1] Light transport measurement using ToF camera by Yasuhiro Mukaigawa (Nara Institute of Science and Technology, Japan)

11:30-12:10 [Invited2] A high-speed, high-sensitivity, large aperture avalanche image intensifier panel by Yasunobu Arikawa, Ryosuke Mizutani, Yuki Abe, Shohei Sakata, Jo Nishibata, Akifumi Yogo, Mitsuo Nakai, Hiroyuki Shiraga, Hiroaki Nishimura, Shinsuke Fujioka, and Ryosuke Kodama (Osaka Univ., Japan)

12:10-13:30 Lunch (80-min)

13:30-14:50 Circuit and process technologies (80-min) **Chair:** Keiichiro Kagawa (Shizuoka Univ., Japan)

13:30-14:10 [Invited3] A back-illuminated global-shutter CMOS image sensor with pixel-parallel 14-bit subthreshold ADC by Shin Sakai, Masaki Sakakibara, Tsukasa Miura, Hirotsugu Takahashi, Tadayuki Taura, and Yusuke Oike (Sony Semiconductor Solutions Corporation, Japan)

14:10-14:50 [Invited4] RTS noise characterization and suppression for advanced CMOS image sensors by Rihito Kuroda, Shinya Ichino, Takezo Mawaki, Tomoyuki Suwa, Akinobu Teramoto, and Shigetoshi Sugawa (Tohoku Univ., Japan)

14:50-15:00 Break (10-min)

15:00-16:20 Multi-spectral imaging(90-min) **Chair:** Takashi Komuro (Saitama Univ., Japan)

15:00-15:40 [Invited5] Snapshot multispectral imaging using a filter array by Kazuma Shinoda (Utsunomiya Univ., Japan)

15:40-16:20 [Invited6] Multiband imaging and optical spectroscopic sensing for digital agriculture by Takaharu Kameoka, Atsushi Hashimoto (Mie Univ., Japan), Kazuki Kobayashi (Shinshu Univ., Japan), Keiichiro Kagawa (Shizuoka Univ., Japan), Masayuki Hirafuji (Univ. of Tokyo, Japan), and Jun Tanida (Osaka Univ., Japan)

16:20-16:30 Break (10-min)

16:30-18:00 Poster session as ITE Open Session (90-min)

This session includes 22 regular papers. See the following URL for the program.

https://www.ite.or.jp/ken/program/index.php?mode=program&tgs_regid=087c5280195ec72d7d2841c8805a0eccc22f8ed737965ec60e99821155ad5293&tgid=ITE-IST&layout=&lang=eng

18:00-18:10 Break (10-min)

18:10-20:00 Reception (110-min)

18:10-20:00 Reception and poster award

(Continued)

Nov. 29 (THU)

9:30-11:30 Computational imaging and biomedical imaging (120-min)

Chair: Atsushi Ono (Shizuoka Univ., Japan)

9:30-10:10 [Invited7] Lensless fluorescence microscope by Kiyotaka Sasagawa, Ayaka Kimura, Yasumi Ohta, Makito Haruta, Toshihiko Noda, Takashi Tokuda, and Jun Ohta (Nara Institute of Science and Technology, Japan)

10:10-10:50 [Invited8] Computational photography using programmable sensors by Hajime Nagahara (Osaka Univ., Japan)

10:50-11:30 [Invited9] Medical imaging with multi-tap CMOS image sensors by Keiichiro Kagawa, Keita Yasutomi, and Shoji Kawahito (Shizuoka Univ., Japan)

11:30-13:00 Lunch (90-min)

13:00-15:50 Computational imaging and display (160-min)

Chair: Hiroyuki Suzuki (Tokyo Inst. of Tech., Japan)

13:00-13:40 [Invited10] Image processing for personalized reality by Kiyoshi Kiyokawa (Nara Institute of Science and Technology, Japan)

13:40-14:20 [Invited11] Pixel aperture and offset pixel aperture techniques for 3-dimensional imaging by Jang-Kyoo Shin, Byoung-Soo Choi, Jimin Lee (Kyungpook National Univ., Korea), Seunghyuk Chang, Jong-Ho Park, and Sang-Jin Lee (KAIST, Korea)

14:20-14:30 Break (10-min)

14:30-15:10 [Invited12] Low power and low latency line streaming image processing for 3D user interface on smart devices by Sungpill Choi and Hoi-jun Yoo (KAIST, Korea)

15:10-15:50 [Invited13] Image sensing for human-computer interaction by Takashi Komuro (Saitama Univ., Japan)

15:50-16:00 Closing remarks by Hirotsugu Yamamoto (Utsunomiya Univ.)

<Contact for any question about IWISS2018>

E-mail: iwiss2018@idl.rie.shizuoka.ac.jp

(Keiichiro Kagawa, Shizuoka Univ., Japan)