

Time Table

Monday, July 1, 2019

Time	Multi-Purpose Digital Hall	Collaboration Room	Media Hall	Entrance Hall
10:30				Registration 10:30-18:00
10:55		Opening 10:55-11:00		
11:00		QIRT Short Course 1 11:00-12:30		
12:30		Lunch 12:30-14:00		
14:00		QIRT Short Course 2 14:00-15:30	Preparation for Exhibition 14:00-17:00	
15:30		Break 15:30-15:45		
15:45		QIRT Short Course 3 15:45-16:45		
16:45		Break 16:45-17:00		
17:00		QIRT Short Course 4 17:00-18:00		
18:00				

Tentative

Time Table (Cont'd)

Tuesday, July 2, 2019

Time	Multi-Purpose Digital Hall	Collaboration Room	Media Hall	Entrance Hall	
8:30				Registration 8:30-18:45	
9:00	Opening Ceremony 9:00-9:15				
9:15	Plenary Lecture 1 9:15-10:15				
10:15	Break 10:15-10:35		Exhibition 10:15-16:30		
10:35	Session 1 10:35-12:00 85 min	Preparation for Poster Presentation			
10:55					
11:15					
11:30					
11:45					
12:00	Lunch at Royal Blue Hall 12:00-13:40				
13:40	Session 2 13:40-15:10 90 min				
14:00					
14:20					
14:40					
14:55					
15:10	Break 15:10-15:30				
15:30		Session 3 (Poster) 15:30-16:30 60 min			
16:30	Session 4 16:30-17:45 75 min				
16:45					
17:00					
17:15					
17:30					
17:45		Reception 17:45-18:45			
18:45					

Time Table (Cont'd)

Wednesday, July 3, 2019

Time	Multi-Purpose Digital Hall	Collaboration Room	Media Hall	Entrance Hall
8:30				Registration 8:30-17:50
9:00	Plenary Lecture 2 9:00-10:00			
10:00	Break 10:00-10:20		Exhibition 10:00-16:20	
10:20	Session 5 10:20-12:05 105 min	Preparation for Poster Presentation		
10:40				
10:55				
11:15				
11:35				
11:50				
12:05	Lunch at Royal Blue Hall 12:05-13:40			
13:40	Session 6 13:40-15:00 80 min			
14:00				
14:15				
14:30				
14:45				
15:00		Break 15:00-15:20		
15:00		Session 7 (Poster) 15:20-16:20 60 min		
16:20	Session 8 16:20-17:50 90 min			
16:35				
16:50				
17:05				
17:20				
17:35				
17:50				

Time Table (Cont'd)

Thursday, July 4, 2019

Time	Multi-Purpose Digital Hall	Collaboration Room	Media Hall	Entrance Hall
8:30				Registration 8:30-13:00
9:00	Plenary Lecture 3 9:00-10:00			
10:00	Break 10:00-10:20		Exhibition 10:00-13:00	
10:20	Session 9 10:20-12:15 125 min			
10:40				
11:00				
11:20				
11:40				
11:55				
12:10	Lunch 12:10-13:00			
13:00	Excursion to Asakusa and Tokyo Skytree 13:00-17:00			
17:00	Banquet at Tsunamachi Mitsui Club 17:00-20:30			
20:30				

tentative

Time Table (Cont'd)

Friday, July 5, 2019

Time	Multi-Purpose Digital Hall	Collaboration Room	Media Hall	Entrance Hall
8:30				Registration 8:30-10:20
9:00	Session 10 9:00-10:00 60 min			
9:15				
9:30				
9:45				
10:00	Break 10:00-10:20			
10:20	Session 11 10:20-11:50 90 min			
10:35				
10:50				
11:05				
11:20				
11:35				
11:50	Closing Ceremony 11:50-12:00			
12:00				

Tentative

Program

Monday, July 1, 2019

The Basic Course of Thermography (Associate Open Event)

10:55–11:00 **Opening Remarks**

Prof. Xavier Maldague, Laval University, Canada

11:00–12:30 **Basics of IR Thermography I**

Prof. Vladimir Vavilov, Tomsk Polytechnic University, Russia

12:30–14:00 **Lunch**

14:00–15:30 **Basics of IR Thermography II**

Prof. Xavier Maldague, Laval University, Canada

15:30–15:45 **Break**

15:45–16:45 **Thermography applied to thermophysical properties assessment / Thermography applied to buildings and cultural heritage**

Dr. Paolo Bison, CNR Padua, Italy

16:45–17:00 **Break**

17:00–18:00 **IR for inspection and/or thermal monitoring of infrastructures: scope of application, technical solutions and analysis methods**

Dr. Jean Dumoulin, IFSTTAR, COSYS-SII / Inria, France

Tentative

Tuesday, July 2, 2019

Opening Ceremony

- Chair *Prof. Junko Morikawa*
Chair, QIRT-Asia Steering Committee
Tokyo Institute of Technology, Japan
- 9:00–9:15 **Prof. Xavier Maldague**
Chair, QIRT Steering Committee
Laval University, Canada
- Prof. Kazuya Masu**
President, Tokyo Institute of Technology
- Dr. Norikazu Ooka**
President, Asia Pacific Federation for Non Destructive Testing

Plenary Lecture 1

- Chair *Junko Morikawa, Tokyo Institute of Technology, Japan*
- 9:15–10:15 **New imaging methods related to the mapping of in-plane thermal properties with active thermography**
Prof. Jean-Christophe Batsale, Arts et Métiers ParisTech, France
- 10:15–10:35 **Break**

Session 1

- Chairs *Beate Oswald-Tranta, University of Leoben, Austria*
Junyan Liu, Harbin Institute of Technology, China
- 10:35–10:55 **[Keynote] Thermography on moving samples: recent developments for quantitative evaluation**
Arantza Mendioroz, Universidad del País Vasco, Spain
Agustin Salazar, ditto
- 10:55–11:15 **[Keynote] Multispectral and multiscale infrared imaging for the study of heat and mass transfer in heterogeneous media**
Christophe Pradere, I2M, UMR CNRS 5295, France
A. Sommer, ditto
S. Chevalier, ditto
E. Abisset, ditto
Jean-Christophe Batsale, ditto
- 11:15–11:30 **Micro-scale infrared thermography and its application to the electronic and bio-medical applications**
Junko Morikawa, Tokyo Institute of Technology, Japan
- 11:30–11:45 **New measurement method of thermal contact resistance by periodic heating method using lock-In thermography**
Takuya Ishizaki, Nagoya University, Japan
Taichi Igami, ditto
Ai Ueno, ditto
Hosei Nagano, ditto
- 11:45–12:00 **Simultaneous measurement of temperature and flow fields around a small heated sphere in water using near-infrared absorption imaging method and particle tracking velocimetry**
Zhenlei Wang, Tokyo Metropolitan University, Japan
Yuki Arakawa, ditto
Cuong Van Han, ditto
Katsuya Kondo, Tottori University, Japan
Naoto Kakuta, Tokyo Metropolitan University, Japan

12:00–13:40 **Lunch at Royal Blue Hall**

Tuesday, July 2, 2019 (Cont'd)

Session 2

Chairs *Paolo Bison, CNR Padua, Italy*

M. Menaka, Indira Gandhi Centre for Atomic Research, India

13:40–14:00 **[Keynote] Thermal wave imaging for NDT&E: methods, experiments and applications**

Junyan Liu, Harbin Institute of Technology, China

14:00–14:20 **[Keynote] Data fusion analysis based active thermography for SNR enhancement**

Wontae Kim, Kongju National University, Rep. Korea

Ranjit Shrestha, ditto

Manyong Choi, Korea Research Institute of Standards and Science, Rep. Korea

14:20–14:40 **[Keynote] Artificial intelligence-based defect detection and classification using pulsed infrared thermography**

Yuxia Duan, Central South University, China

Hai Zhang, University of Toronto / Laval University, Canada

Caiqi Hu, Central South University, China

Shicai Liu, ditto

Xavier Maldague, Laval University, Canada

Ning Tao, Capital Normal University, China

14:40–14:55 **New approach for layer thickness measurements using pulsed lock-in thermography**

Daniel Hoffmann, SKZ – German Plastics Center, Germany

Thomas Hochrein, ditto

Martin Bastian, ditto

Giovanni Schober, ditto

14:55–15:10 **Detection of micro-cracks in metal elements by laser excited thermography**

Waldemar Swiderski, Military Institute of Armament Technology, Poland

15:10–15:30 **Break**

Session 3 (Poster)

15:30–16:30 **Use of a low-cost infrared sensor for educational purpose: statistical analysis of results obtained by students**

Massimiliano Zamengo, Tokyo Institute of Technology, Japan

Junko Morikawa, ditto

Using near infrared spectroscopy (NIRS) to measure cerebral and muscle tissues oxygenations after two-week altitude training

Chen-Chan Wei, University of Taipei, Chinese Taiwan

Shiow-Chwen Tsai, ditto

Yi-Hung Liao, National Taipei University of Nursing and Health Sciences, Chinese Taiwan

Chung-Yu Chen, University of Taipei, Chinese Taiwan

The application of using near-infrared spectroscopy (NIRS) to examine prefrontal cerebral blood distribution under hypoxic during strenuous exercise

Shiow-Chwen Tsai, University of Taipei, Chinese Taiwan

Chung-Yu Chen, ditto

Chen-Chan Wei, ditto

Yi-Hung Liao, National Taipei University of Nursing and Health Sciences, Chinese Taiwan

Tuesday, July 2, 2019 (Cont'd)

Session 3 (Poster, Cont'd)

15:30–16:30 **Mechanical bio-compatibility evaluation of stem design in total hip arthroplasty — a thermoelastic stress imaging study—**

Hironori Takehashi, University of Tsukuba, Japan

Koji Hyodo, National Institute of Advanced Industrial Science and Technology (AIST), Japan

Hiroshi Wada, Ibaraki Western Medical Center, Japan

Hajime Mishima, University of Tsukuba, Japan

Masashi Yamazaki, ditto

High speed infrared thermography of freezing onion-skin cells

Kazuyuki Ikuo, Photron Limited, Japan

Meguya Ryu, Tokyo Institute of Technology, Japan

Junko Morikawa, ditto

Thermal effect on dispersive spectroscopic infrared imaging of prostate cancer tissue

Cai Li Song, Imperial College London, UK

Meguya Ryu, Tokyo Institute of Technology, Japan

Junko Morikawa, ditto

Archana Kothari, Kingston Hospital, UK

Sergei G. Kazarian, Imperial College London, UK

Separation of defects and background reflections using polarization theory for metal

Soshi Suzuki, National Defense Academy, Japan

Nagahisa Ogasawara, ditto

Influence of cover depth towards quantitative size estimation of delaminations in external wall using passive infrared thermography

Sin Yau Chiu, The Hong Kong Polytechnic University, China

Wallace Wai Lok Lai, ditto

Janet Fung Chu Sham, ditto

Miranda Ching Yee Lui, ditto

Effects of thermal contrast on size estimation of debonds in external wall's composite finishes via passive infrared thermography and a modified gradient algorithm

Fung Chu Janet Sham, The Hong Kong Polytechnic University, China

Wai Lok Wallace Lai, ditto

Sin Yau Lydia Chiu, ditto

Reducing inspection time of active thermographic non-destructive testing based on thermal wave theory

Masashi Ishikawa, Tokushima University, Japan

Masashi Koyama, Meisei University, Japan

Hideyuki Kasano, Nihon University, Japan

Ryo Fukui, KJTD Co., Ltd., Japan

Hiroshi Hatta, Japan Aerospace Exploration Agency (JAXA), Japan

Shin Utsunomiya, ditto

Hideo Nishino, Tokushima University, Japan

Application of sparse non-negative matrix factorization in infrared non-destructive testing

Bardia Yousefi, Laval University, Canada

Local heat transfer measurement in pool boiling using high-speed IR thermography

Tomohide Yabuki, Kyushu Institute of Technology

Takanori Tanaka, ditto

Koji Miyazaki, ditto

Tuesday, July 2, 2019 (Cont'd)

Session 4

- Chairs* Yuxia Duan, Central South University, China
Guenther Mayr, University of Applied Sciences Upper Austria, Josef Ressel Centre for Thermal NDE of Composites, Austria
- 16:30–16:45 **Raising safety and productivity in underground mining via thermal imaging**
Sebastian Graszak, RWTH Aachen University, Germany
Tobias Wendel, ditto
Ralph Baltès, ditto
Elisabeth Clausen, ditto
- 16:45–17:00 **A novel experimental setup for the stress test of geopolymer-based hydronic radiant panels using infrared thermography**
Giovanni Ferrarini, Consiglio Nazionale delle Ricerche, Istituto per le Tecnologie della Costruzione (CNR-ITC), Italy
Paolo Bison, ditto
Alessandro Bortolin, ditto
Gianluca Cadelano, ditto
Marco Natali, Consiglio Nazionale delle Ricerche, Istituto di Chimica per la Materia e di Tecnologie per l'Energia (CNR-ICMATE), Italy
Matteo Panizza, ditto
Sergio Tamburini, ditto
- 17:00–17:15 **Detection of structural damage of infrared thermal image using computer vision**
Junghyun Im, Sungkyunkwan University, Rep. Korea
Wonkyu Kim,
Sehwan Park,
Seunghee, Park,
- 17:15–17:30 **Study and designed of an active infrared system for in-situ characterization of thermal resistance of building envelopes**
Ludovic Gavérina, IFSTTAR, COSYS-SII / Inria, France
Thanh-Tung Ha, UPEC, CERTES, France
Julien Waeytens, IFSTTAR, COSYS-LISIS, France
Vincent Feuillet, UPEC, CERTES, France
Jean-Luc Manceau, IFSTTAR, COSYS-SII / Inria, France
Laurent Peiffer, Cerema-Dter Est-Laboratoire ds Nancy, France
Jean-Pierre Monchau, THEMACS Ingénierie, France
Mario Marchetti, Cerema-Dter Est-Laboratoire ds Nancy, France
Laurent Ibos, UPEC, CERTES, France
Jean Dumoulin, IFSTTAR, COSYS-SII / Inria, France
- 17:30–17:45 **Detection of back-surface crack based on temperature gap infrared thermography**
Yui Izumi, The University of Shiga Prefecture, Japan
Yoshiaki Mizokami, Honshu-Shikoku Bridge Expressway Company Limited, Japan
Noriyasu Arima, ditto
Takahide Sakagami, Kobe University, Japan

17:45–18:45 **Reception**

Wednesday, July 3, 2019

Plenary Lecture 2

Chair *Xavier Maldague, Laval University, Canada*

9:00–10:00 **Development of NDE techniques for the maintenance of long-span steel bridges based on infrared measurement**

Prof. Takahide Sakagami, Kobe University, Japan

10:00–10:20 **Break**

Session 5

Chairs *Arantza Mendioroz, Universidad del País Vasco, Spain*

Koji Hyodo, National Institute of Advanced Industrial Science and Technology (AIST), Japan

10:20–10:40 **[Keynote] Robotized line-scan thermography combined with a new compressed sensing technology for investigating a painting on canvas artwork**

Hai Zhang, Laval University, Canada

Mingli Zhang, McGill University, Canada

Stefano Sfarra, University of L'Aquila, Italy

Ahmad Osman, Fraunhofer IZFP / University of Applied Sciences, Germany

Clemente, Ibarra-Castanedo, Laval University, Canada

Xavier Maldague, Laval University, Canada

10:40–10:55 **Quantitative measurement of cast metal relics by pulsed thermal imaging**

Ning Tao, Capital Normal University, China

Jiangang Sun, ditto

Cunlin Zhang,

10:55–11:15 **[Keynote] Advances in uncooled infrared focal plane array technology**

Masafumi Kimata, Ritsumeikan University, Japan

11:15–11:35 **[Keynote] Improved temperature measurement with thermal imagers**

Yoshiro Yamada, National Institute of Advanced Industrial Science and Technology (AIST), Japan

11:35–11:50 **Simultaneous determination of emissivity and temperature of titanium at high temperature**

Sumeet Kumar, Indian Institute of Technology Madras, India

C. V. Krishnamurthy, ditto

Krishnan Balasubramaniam, ditto

11:50–12:05 **Novel free emissivity dual color physics methodology at CIRA in the infrared ranges: applicabilities study from low to high temperature**

Mario De Cesare, Italian Aerospace Research Centre / National Institute for Nuclear Physics / University of Campania "Luigi Vanvitelli", Italy

L. Savino, Italian Aerospace Research Centre, Italy

F. Di Carolo, Italian Aerospace Research Centre / Polytechnic University of Bari, Italy

A. Del Vecchio, Italian Aerospace Research Centre / National Institute for Nuclear Physics, Italy

Umberto Galiotti, Polytechnic University of Bari, Italy

Davide Palumbo, Polytechnic University of Bari, Italy

12:05–13:40 **Lunch at Royal Blue Hall**

Wednesday, July 3, 2019 (Cont'd)

Session 6

- Chairs *Joseph N. Zalameda, NASA Langley Research Center, USA*
Vladimir Vavilov, Tomsk Polytechnic University, Russia
- 13:40–14:00 **[Keynote] Virtual wave concept for 3D thermographic imaging**
Guenther Mayr, University of Applied Sciences Upper Austria, Austria
Gregor Thummerer, ditto
Holger Plasser, ditto
Peter Burgholzer, Research Center for Non Destructive Testing GmbH, Austria
- 14:00–14:15 **Numerical simulation on thermal and mechanical response of weak bonds in composite material**
*Yew Li Hor, A*STAR Institute of High Performance Computing, Singapore*
Viet Phuong Bui, ditto
- 14:15–14:30 **Virtual wave concept for thermographic parameter estimation using modulated laser excitation**
Holger Plasser, University of Applied Sciences Upper Austria, Austria
Guenther Mayr, ditto
Gregor Thummerer, ditto
Guenther Hendorfer, ditto
Peter Burgholzer, Research Center for Non Destructive Testing GmbH, Austria
- 14:30–14:45 **1D and 3D defect characterization in IR thermographic NDT**
Vladimir Vavilov, Tomsk Polytechnic University, Russia
Arsenii Chulkov, ditto
- 14:45–15:00 **Fiber orientation evaluation of CFRP/CFRTP based on 3-D thermal diffusivity measurement using lock-in thermography**
Hosei Nagano, Nagoya University, Japan
- 15:00–15:20 **Break**

Session 7 (Poster)

- 15:20–16:20 **Evaluation the fatigue crack closure in metal using eddy current pulsed thermograph**
Jianping Peng, Southwest Jiaotong University, China
Lingfan Feng, ditto
Jie Bai, ditto
Hui Yin, ditto
Jianji Fu, ditto
Jianguang Guo, ditto
Zhu He, ditto
- Temperature distribution in ultrafast chip-nanocalorimeters measured by micro-scale infrared thermography**
Alexander Minakov, Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia
Junko Morikawa, Tokyo Institute of Technology, Japan
Evgeny Zhuraviev, University of Rostock, Germany
Meguya Ryu, Tokyo Institute of Technology, Japan
A.W. van Herwaarden, Xensor Integration, The Netherlands
Christoph Schick, University of Rostock, Germany / Kazan Federal University, Russia / Tokyo Institute of Technology, Japan
- Comparative study of pulsed IR thermography and ultrasonic testing to obtain a porosity mapping of oxide/oxide CMC specimens**
Ludovic Gavérina, ONERA, France
Camille Trottier, ditto
Françoise Passilly, ditto
Jean-Michel Roche, ditto

Wednesday, July 3, 2019 (Cont'd)

Session 7 (Poster, Cont'd)

15:20–16:20 **Modeling of crack detecting in turbine blades using vibrothermography technique**

Abbasali - Saboktakin, University of Sistan and Baluchestan, Iran

A. Ghasemi, ditto

Xavier Maldague, Laval University, Canada

3D reconstruction of gas leak image based on computed tomography processing of infrared data

Masaki Uchida, Kobe University, Japan

Daiki Shiozawa, ditto

Takahide Sakagami, ditto

Shiro Kubo, ditto

In situ thermo-imaging of local thermal non-equilibrium formed during microwave-enhanced heterogeneous catalytic reactions

Shuntaro Tsubaki, Tokyo Institute of Technology, Japan

Tomoki Matsuzawa, ditto

Kotaro Ito, ditto

Yuji Wada, ditto

Merit and important point of Near InfraRed (NIR) thermography

Hideyuki Uemura, FLIR Systems Japan K.K., Japan

Fatigue limit estimation for FSW joints of aluminum alloy based on dissipated energy measurement

Yusuke Tanaka, Kobe University, Japan

Daiki Shiozawa, ditto

Yuto Ogino, ditto

Eitaro Yukutake, Industrial Technology Innovation Center of Ibaraki Prefecture, Japan

Takahide Sakagami, Kobe University, Japan

Thermoelastic stress and dissipation energy measurement with optical-infrared synchronous measurement system

Kazuki Kobayashi, Kobe University, Japan

Masaki Uchida, ditto

Mitsuhiro Hori, ditto

Daiki Shiozawa, ditto

Takahide Sakagami, ditto

Observation of the temperature field dynamics by the thermospectroscopic imaging

Meguya Ryu, Tokyo Institute of Technology, Japan

Junko Morikawa, ditto

Fatigue strength evaluation for CFRP Based on thermoelastic stress analysis

Tasuku Yamaguchi, Kobe University, Japan

Daiki Shiozawa, ditto

Yu Nakamura, ditto

Shinichi Nonaka, DIC Corporation, Japan

Tomoaki, Shinchi, ditto

Takahide Sakagami, Kobe University, Japan

Wednesday, July 3, 2019 (Cont'd)

Session 8

- Chairs* Christophe Pradere, CNRS Bordeaux, France
Yoshiro Yamada, National Institute of Advanced Industrial Science and Technology (AIST), Japan
- 16:20–16:35 **Near-infrared imaging and analysis of acid-base neutralization reactions**
Takato Uema, Tokyo Metropolitan University, Japan
Toshiya Ohata, ditto
Yutaka Washizuka, ditto
Naoto Kakuta, ditto
- 16:35–16:50 **Application of polarized IR / NIR spectroscopic imaging for analysis of polymer products**
Yuta Hikima, Kyoto University, Japan
Toshiki Nakamura, ditto
Yusuke Taya, ditto
Masahiro Ohshima, ditto
- 16:50–17:05 **Fatigue strength evaluation for aluminum alloy based on dissipated energy measurement**
Daiki Shiozawa, Kobe University, Japan
Ichiro Mishima, ditto
Keita Chinzaka, ditto
Takahide Sakagami, ditto
- 17:05–17:20 **Frequency dependence of estimated fatigue limit by lock-in infrared thermography for commercially pure Ti**
Tetsuya Matsunaga, National Institute of Materials Science (NIMS), Japan
Takehiro Nojima, ditto
Nobuo Nagashima, ditto
- 17:20–17:35 **An analysis of experimental techniques for estimation of stored energy evolution in Grade2 titanium alloy samples under plastic deformation**
Oleg Anatolievich Plekhov, Institute of Continuous Media Mechanics of the Ural Branch of the Russian Academy of Sciences, Russia
Anastasiya Izumova, ditto
Alena Vedernikova, ditto
- 17:35–17:50 **Temperature variation of rubber under uniaxial cyclic tension**
Tam Hoai Le, Tokyo Institute of Technology, Japan
Takumi Yoshikawa, Formerly Tokyo Institute of Technology, Japan
Yu Kurokawa, Tokyo Institute of Technology, Japan
Hirotsugu Inoue, ditto

Thursday, July 4, 2019

Plenary Lecture 3

Chair *Takahide Sakagami, Kobe University, Japan*

9:00–10:00 **Composite Thermal Nondestructive Evaluation Research at NASA Langley**
Mr. Joseph N. Zalameda, NASA Langley Research Center, USA

10:00–10:20 **Break**

Session 9

Chairs *Xavier Maldague, Laval University, Canada*

Masayuki Tanaka, Tokyo Institute of Technology / National Institute of Advanced Industrial Science and Technology (AIST), Japan

10:20–10:40 **[Keynote] Thermography of asteroid Ryugu by Hayabusa2**

Tatsuaki Okada, Japan Aerospace Exploration Agency (JAXA), Japan
Hayabusa2 TIR Team, ditto

10:40–11:00 **[Keynote] Infrared vision system for spectral monitoring of dynamic phenomena at over 1000 fps: Application to combustion**

Marija Strojnik, Optics Research Center A.C., Mexico

11:00–11:20 **[Keynote] Induction thermography — a non-destructive testing method**

Beate Oswald-Tranta, University of Leoben, Austria

11:20–11:40 **[Keynote] Numerical and experimental investigation of eddy current thermography technique on metallic samples**

Ilham Mukriz B. Zainal Abidin, Malaysian Nuclear Agency, Malaysia

11:40–11:55 **Visualization applications of the infrared image by the high-speed infrared thermography**

Tatsuya Yaoita, Ken Automation, Inc., Japan

11:55–12:10 **Visible and thermal camera system for 360-degree dynamic panorama**

Thapanapong Rukkanchanunt, Tokyo Institute of Technology, Japan

Takashi Shibata, NEC Corporation, Japan

Masayuki Tanaka, Tokyo Institute of Technology / National Institute of Advanced Industrial Science and Technology (AIST), Japan

Masatoshi Okutomi, Tokyo Institute of Technology, Japan

12:10–13:00 **Lunch**

Excursion

13:00–17:00 **Excursion to Asakusa and Tokyo Skytree**

Bus tour departs from Tokyo Institute of Technology at 13:00 and reaches Tsunamachi Mitsui Club at 17:00.

Those who join the excursion are requested to be ready for Banquet.

Banquet

17:00–20:30 **Banquet at Tsunamachi Mitsui Club**

Please be sure that a dress code (Jacket or Equivalent) applies to all participants.

Friday, July 5, 2019

Session 10

- Chairs* Jean Dumoulin, IFSTTAR, COSYS-SII / Inria, France
Wontae Kim, Kongju National University, Rep. Korea
- 9:00–9:15 **Bilateral comparison of forearm skin temperature during handgrip force exercise**
Ricardo Vardasca, INEGI-LAETA, Universidade do Porto, Portugal
Carolina Magalhaes, ditto
Paulo Abreu, ditto
Joaquim Mendes, ditto
Maria Teresa Restivo, ditto
- 9:15–9:30 **Feasibility study of laser lock-in thermography for micro-crack detection on dental tooth**
Chun Yong Andrew Ngo, Institute of Materials Research and Engineering, Singapore
Vinod Kumar S/O Sivaraja, ditto
Yan Wei Kenneth Low, Nanyang Technological University, Singapore
Brian Stephen Wong, ditto
- 9:30–9:45 **Diabetic foot monitoring using dynamic thermography and AI classifiers**
Ricardo Vardasca, INEGI-LAETA, Universidade do Porto, Portugal
Carolina Magalhaes, ditto
Aderito Seixas, Universidade Fernando Pessoa, Portugal
Rui Carvalho, Centro Hospitalar e Universitário do Porto, Portugal
Joaquim Mendes, INEGI-LAETA, Universidade do Porto, Portugal
- 9:45–10:00 **Structure of operating room to avoid perioperative complication**
Hisashi Usuki, Kagawa University Hospital, Japan
- 10:00–10:20 **Break**

Session 11

- Chair* Marija Strojnik, Optics Research Center A.C., Mexico
- 10:20–10:35 **Vacuum leak detection using infrared thermal imaging for detection of failed joints and structural integrity simulation and experimental study**
M. Menaka, Indira Gandhi Centre for Atomic Research, India
M.P. Bharanidharan, Kalasalingam University, India
V. Subramaniam, Indira Gandhi Centre for Atomic Research, India
Adam Khan M., Kalasalingam University, India
N. Raghu, Indira Gandhi Centre for Atomic Research, India
B. Venkatraman, ditto
- 10:35–10:50 **Comparative study of moving train hot boxes pre-detection and axles counting by in-situ implementation of two infrared cameras**
Thibaud Toullier, IFSTTAR, COSYS-SII / Inria, France
Jean Dumoulin, ditto
Vincent Bourgeois, SNCF Réseau, France
- 10:50–11:05 **Detection and evaluation of degradation in electric wire connection using infrared thermography**
Kotaro Yamakoshi, Thermographers Co., Ltd., Japan
Naoyuki Kumagai, The Kansai Electric Power Co., Inc, Japan
Hirotugu Inoue, Tokyo Institute of Technology, Japan
Hirofumi Yamada, Thermographers Co., Ltd., Japan
Yutaka Kasai, ditto
- 11:05–11:20 **Thermography suitable for in-line use in metal processing**
Shuichi Ohkubo, Nippon Avionics Co., Ltd., Japan
Tetsuo Tamura, ditto

Friday, July 5, 2019 (Cont'd)

Session 11 (Cont'd)

11:20–11:35 **Confocal temperature calibration for multispectral Infrared thermography and its application to polymer processing**

Junko Morikawa, Tokyo Institute of Technology, Japan

Eita Hayakawa, ai-Phase Co., Ltd., Japan

Toshimasa Hashimoto, ditto

H. Suzuki, Shin-Etsu Polymer Co. Ltd., Japan

11:35–11:50 **Active thermography method for metallic plasma-facing components temperature measurements in the thermonuclear fusion devices**

Baurzhan Chektybayev, Semey State University named after Shakarim / Branch Institute of Atomic Energy of National Nuclear Center of Republic of Kazakhstan, Kazakhstan

Erlan Batyrbekov, National Nuclear Center of Republic of Kazakhstan, Kazakhstan

Mazhyn Skakov, Branch Institute of Atomic Energy of National Nuclear Center of Republic of Kazakhstan, Kazakhstan

Anuar Sadykov, ditto

Closing Ceremony

Chair Prof. Hirotsugu Inoue
Chair, Local Organizing Sub-Committee
Tokyo Institute of Technology, Japan

11:50–12:00 **Prof. Junko Morikawa**
Chair, QIRT-Asia Steering Committee
Tokyo Institute of Technology, Japan