

*International Forum on Advanced Technologies*  
*March 9<sup>th</sup>, 2015, Tokushima, Japan*



***International Forum on Advanced Technologies***  
***IFAT2015***

# **Program**

Sponsored by  
**The University of Tokushima**

Co-Sponsored by  
**National Taiwan University of Science & Technology**

Supported by  
**The Iron and Steel Institute of Japan**  
Division of Process Evaluation and Material  
Characterization  
**The Society of Chemical Engineers, Japan**  
Energy Panel  
Trace Element Section  
**IEEE CASS Shikoku Chapter**  
**The Society of Materials Science, Shikoku Branch, Japan**



**March 9<sup>th</sup>, 2015**

**Venue : The University of Tokushima**

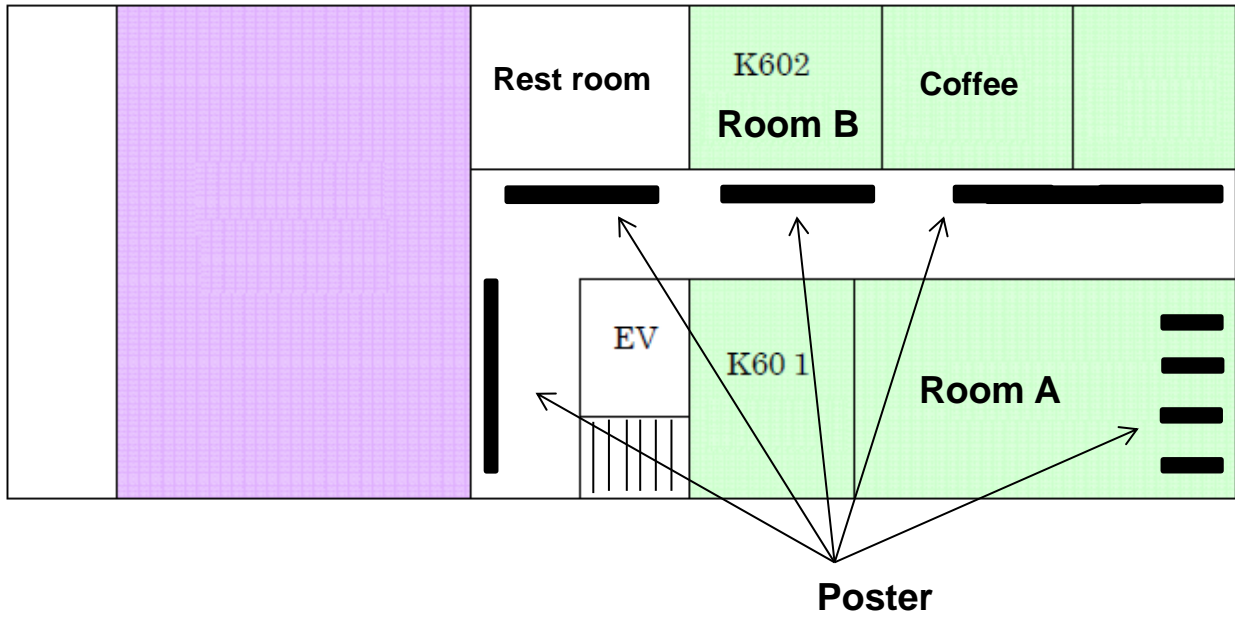
## Program

Time	Program/Room		
	Room A Chairperson Prof. Yoshihiro Deguchi		
9:00-9:10	Opening Prof. Yasuhiko Kawamura		
9:10-9:40	Key Note Speech K01		
9:40-10:10	Key Note Speech K02		
	Room A Chairperson Prof. Yoshihiro Deguchi Prof. Deog Hee Doh	Room B Chairperson Prof. Ryosuke Uzuoka Prof. Jia-Zhong Zhang	Room C Chairperson Prof. Takao Ueda Prof. Shih-Hsuan Chiu
10:10-10:40	Invited I01	Invited I07	Invited I13
10:40-11:10	Invited I02	Invited I08	Invited I14
11:10-11:40	Invited I03	Invited I09	Invited I15
11:40-12:10	Invited I04	Invited I10	Invited I16
12:10-13:30	Lunch (Poster in one glance)		
	Room A Chairperson Prof. Fang-Jung Shiou		
13:30-14:00	Key Note Speech K03		
14:00-14:30	Key Note Speech K04		
	Room A Chairperson Prof. Masaki Hashizume Prof. Joon Hwan Shim	Room B Chairperson Prof. Hitoshi Takagi Prof. Kuo-Hsin Yang	Room C Chairperson Prof. Nobuo Goto Prof. Kuen-Tsair Lay
14:30-15:00	Invited I05	Invited I11	Invited I17
15:00-15:30	Invited I06	Invited I12	Invited I18
15:30-16:00	O03	O02	O01
16:00-18:00	Poster Session		
	Room A		
18:10-18:20	Closing Prof. Jinn P. Chu		
	Second Cafeteria		
18:30-20:30	Banquet and Student Award		

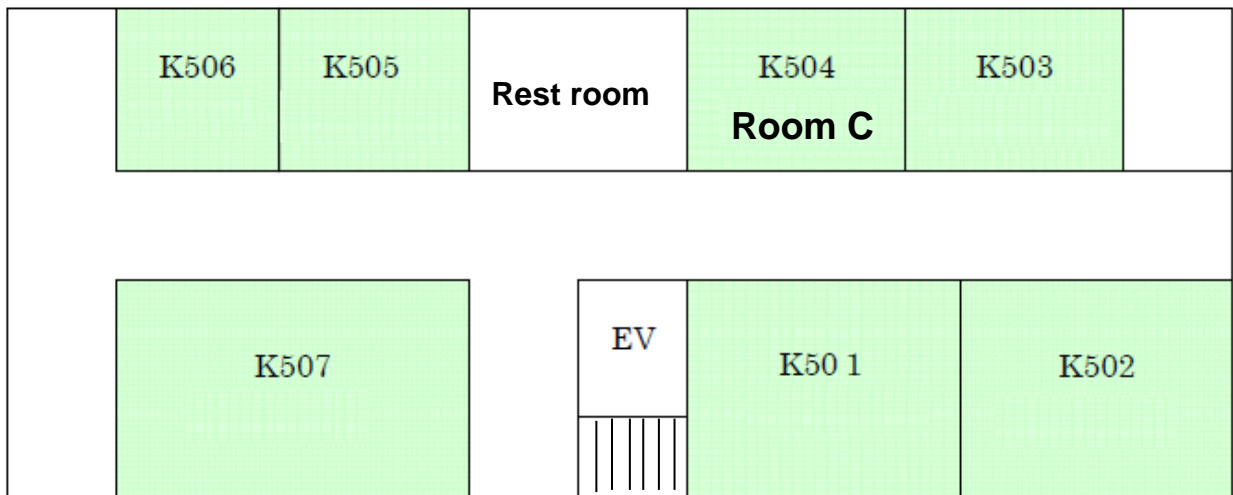
### The Iron and Steel Institute of Japan - LIBS session

14:30-16:00 Room A : I05, I06, O03

**6F**



**5F**



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**Oral Presentation (Presentation time : 30 min. )**

**Room A**

9:10-9:40

Key Note Speech 1: K01 **Deog Hee Doh**  
Korea Maritime and Ocean University  
"3D Flow Diagnoses using Tomographic Measurements"

9:40-10:10

Key Note Speech 2: K02 **Jia-Zhong Zhang**  
Xi'an Jiaotong University  
"Singular Phenomena in Fluid Dynamics and Their Applications under Controlling"

10:10-10:40

Invited speech 1: I01 **Joon Hwan Shim**  
Korea Maritime and Ocean University  
"UAV(unmanned aerial vehicle) Application"

10:40-11:10

Invited speech 2: I02 **Hongjun Ni**  
Nantong University  
"Design and Experimental Research on Coating Device for Circular Direct Methanol Fuel Cell Cathode"

11:10-11:40

Invited speech 3: I03 **Fang-Jung Shiou**, Yoshihiro Deguchi, Jian-Yuan Chen, Ya-Wen Deng,  
Hsin-Ju Chen  
National Taiwan University of Science & Technology  
"Development of a Non-contact 3D Profile Measurement System"

11:40-12:10

Invited speech 4: I04 **Shien-Kuei Liaw**  
National Taiwan University of Science & Technology  
"Fiber Bragg Grating based Single Frequency and Tunable Fiber Lasers"

**Room B**

10:10-10:40

Invited speech 7: I07 **Nai-Shang Liou**  
Southern Taiwan University of Science and Technology  
"The Application of Fluid-structure Interaction Analysis to Biomechanics"

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10:40-11:10

Invited speech 8: I08

**Shu-Chen Cheng**

Southern Taiwan University of Science and Technology

“Applying Adaptive Hybrid Recommendation Technology for Searching Algorithm Learning Articles”

11:10-11:40

Invited speech 9: I09

**Kuen-Tsair Lay**

National Taiwan University of Science & Technology

“Recognition of QR Code Image on Cylinder by Conic Segmentation”

11:40-12:10

Invited speech 10: I10

**Jeng-Shiou Leu** and Tian Song

National Taiwan University of Science & Technology

“Received Signal Strength Indication(RSSI) Prediction-based Adaptive H.264/SVC Video Service on Smartphone”

## **Room C**

10:10-10:40

Invited speech 13: I13

**Shyue-Kung Lu**, Hao-Cheng Jheng, Hao-Wei Lin, and Masaki Hashizume

National Taiwan University of Science & Technology

“Built-In Scrambling Analysis for Yield Enhancement of Embedded Memories”

10:40-11:10

Invited speech 14: I14

**Chien-Kuo Chiu**

National Taiwan University of Science & Technology

“Reliability-Based Design Method of Suppressing Chloride Ingress for Reinforced Concrete Buildings Located in Coastal Regions of Taiwan”

11:10-11:40

Invited speech 15: I15

**Kuo-Hsin Yang** and Ryosuke Uzuoka

National Taiwan University of Science & Technology

“Numerical Analyses of Combined Geohazards induced Failures by Earthquake and Heavy Rainfall”

11:40-12:10

Invited speech 16: I16

**Chen-Hao Wang**, Sun-Tang Chang, Hsin-Chih Huang, Vuri Ayu Setyowati,

Chia-Chi Liu

National Taiwan University of Science & Technology

“Development of Non-precious Metal Catalyst in Fuel Cell”

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**Room A**

13:30-14:00

Key Note Speech 3: K03 **Noordin Mohd. Yusof**, D. Kurniawan, I. Ani, I. Sudin, Hassan Abdelwahab Abdelkarim, E. Fallahiarezoudar, .M. Ahmadipourroudposht and F. Najarian  
Universiti Teknologi Malaysia  
“Use of Design of Experiments and Taguchi Methodologies for various engineering applications”

14:00-14:30

Key Note Speech 4: K04 Yusuke Tanatsugu, Chia-Chi Yu and **Jinn P. Chu**  
National Taiwan University of Science & Technology  
“Thin Film Metallic Glass Coated Medical Needles for Property Enhancements”

14:30-15:00

Invited speech 5: I05 **Zhenzhen Wang**, Junjie Yan, Jiping Liu, Yoshihiro Deguchi,  
Shunpei Katsumori and Akihiro Ikutomo  
Xi'an Jiaotong University  
“Research on content of flue gas pollutants in coal-fired power plant using LIBS”

15:00-15:30

Invited speech 6: I06 **Ryo Yoshiie** Ryo Ishikawa, Yasuaki Ueki and Ichiro Naruse  
Nagoya University  
“Monitoring of volatile trace elements in flue gas using LIBS”

15:30-16:00

Oral Presentation 3: O03 **Yoshihiro Deguchi**, Shunpei Katsumori, Akihiro Ikutomo, Fang-Jung Shiou and Zhenzhen Wang  
“LIBS applications to steel making processes”

**Room B**

14:30-15:00

Invited speech 11: I11 **Denni Kuniawan**, Murtala Sule Dambatt and IzmanSudin  
Universiti Teknologi Malaysia  
“Processing and characterization of Zn-3Mg alloy for implanted medical devices applications”

15:00-15:30

Invited speech 12: I12 **Shih-Hsuan Chiu**, Chun-Hao Chang, Wan-Ting Sun, Hitoshi Takagi, and Antonio Norio Nakagaito  
National Taiwan University of Science & Technology  
“Development of MPPLA Rapid Prototyping System”

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15:30-16:00

Oral Presentation 2: O02 **Yoko Uwate**, and Yoshifumi Nishio  
The University of Tokushima  
“Performance of Artificial Neural Network with Inefficient Learning Process”

**Room C**

14:30-15:00

Invited speech 17: I17 **Shao-Ju Shih**  
National Taiwan University of Science & Technology  
“Synthesis and characterization of Ag-doped bioactive glass”

15:00-15:30

Invited speech 18: I18 **Riichi Murakami** and Dongyan Zhang  
National Taiwan University of Science & Technology  
“Effect of spacer layer on photoluminescence by surface plasmon”

15:30-16:00

Oral Presentation 1: O01 **Fethma M. Nor**  
Universiti Tun Hussein On Malaysia  
“Finite element analysis of various conditions of dental filling”

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**Poster Presentation (Poster Size : height[175cm]xwidth [94cm])**

Poster Presentation 1: P01 **Chia-Chi Yu** Fang-Jung Shiou, Jinn P.Chu and Yoshihiro Deguchi  
National Taiwan University of Science & Technology  
“3D non-contact measurement results on metallic glasses”

Poster Presentation 2: P02 **Cheng-Ju Tsai**, Shyue-Kung Lu and Masaki Hashizume  
National Taiwan University of Science & Technology  
“Integration of Hard Repair Techniques with ECC for Enhancing Fabrication Yield and Reliability of Embedded Memories”

Poster Presentation 3: P03 **Kai-Ning Chi**, Takao Ueda and Ker-Chun Lin  
National Taiwan University of Science & Technology  
“The Surface Geometry and Bond Behavior of Threaded Bars”

Poster Presentation 4: P04 **Joseph Nganga Thuo** and Kuo-Hsin Yang  
National Taiwan University of Science & Technology  
“Numerical study of Sandwiching Nonwoven Geotextile drains in Sand Cushions to Reduce Capillary Barrier Effect within Unsaturated Reinforced Soil Slopes”

Poster Presentation 5: P05 **Chai-Ru Lin**, Y. L. Yu, Y. C.Wang and S. K. Liaw  
National Taiwan University of Science & Technology  
“Bidirectional C+L band Optical Amplifier using Pump Reflector for Residual Pumping Power Recycling”

Poster Presentation 6: P06 **Takeshi Hirano**, Chizuru Sasaki, Chikako Asada, Yoshitoshi Nakamura  
The University of Tokushima  
“High-Pressure Steam Pretreatment for Increasing Delignification and Saccharification of Woody Biomass”

Poster Presentation 7: P07 **Akihiro Suzuki**, Masaya Otuka, Chizuru Sasaki, Chikako Asada, Yoshitoshi Nakamura  
The University of Tokushima  
“Thermo-Mechanical Properties of Plant-Derived Resin”

Poster Presentation 8: P08 **Sunita Basnet**, Masaya Otuka, Chizuru Sasaki, Chikako Asada, Yoshitoshi Nakamura  
The University of Tokushima  
“Catechin from Green Tea: a Potential Candidate for Biobased Epoxy Resin”



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Poster Presentation 9: P09 **Takuya Kawasumi** and Masashi Ichimiya

The University of Tokushima

“Laminar-Turbulent Transition of the Flat-Plate Boundary Layer by a Line of Roughness Elements”

Poster Presentation 10: P10 **Kazuhiro Tamura** and Masashi Ichimiya

The University of Tokushima

“Laminar-Turbulent Transition in a Circular Pipe by the Jet Disturbance”

Poster Presentation 11: P11 **Atsuki Matsubara** and Masashi Ichimiya

The University of Tokushima

“Laminar-Turbulent Transition in a Two-Dimensional Mixing Layer by the Low-Frequency Disturbance”

Poster Presentation 12: P12 **Rina Ando**, Hiroki Kishikawa, Nobuo Goto, and Shin-ichiro Yanagiya

The University of Tokushima

“Modulation format conversion from QPSK to BPSK using four-wave-mixing for elastic optical networking”

Poster Presentation 13: P13 **Kenta Ago**, Yoko Uwate, and Yoshifumi Nishio

The University of Tokushima

“Investigation of Clustering in Complex Networks Using Coupled Chaotic Circuits”

Poster Presentation 14: P14 **Yoshinori Doike**, Yoko Uwate, and Yoshifumi Nishio

The University of Tokushima

“Chaotic Circuit Composed by RC Oscillators and Pulse Generator”

Poster Presentation 15: P15 **Vu Minh Thuan**, Yoko Uwate, and Yoshifumi Nishio

The University of Tokushima

“Synchronization on Coupled van der Pol Oscillators System with Different Amplitudes”

Poster Presentation 16: P16 **Yuki Fujisawa**, Yoko Uwate, and Yoshifumi Nishio

The University of Tokushima

“Research of Two Coupled Maps with Delay”

Poster Presentation 17: P17 **Seiya Kita**, Yoko Uwate, and Yoshifumi Nishio

The University of Tokushima

“Synchronization of Coupled Delay Chaotic Circuits”

Poster Presentation 18: P18 **Taro Nakano**, Yoko Uwate, and Yoshifumi Nishio

The University of Tokushima

“Investigation of Delay Output Cellular Neural Networks for Edge Detection”

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Poster Presentation 19: P19 **Kosuke Oi**, Yoko Uwate, and Yoshifumi Nishio

The University of Tokushima

“Synchronization Phenomena in Coupled Parametrically Excited Oscillators”

Poster Presentation 20: P20 **Hiroshi Fukunaga**, Masaya Muguruma, Shiro Sakai, Suguru Nouda, Masahiro Kimura and Yoshihiko Muramoto

The University of Tokushima

“A Temperature Gradient Method in InGaN/GaN LEDs Manufacturing”

Poster Presentation 21: P21 **Yuta Nakai** and Ryosuke Uzuoka

The University of Tokushima

“Seepage and seismic behaviors of infinite slope during rainfall”

Poster Presentation 22: P22 **Aiyuki Hanamitsu** and Masashi Ichimiya

The University of Tokushima

“Effect of the Interference of Turbulence Wedges due to Roughness Elements on the Flat-Plate Boundary-Layer Transition”

Poster Presentation 23: P23 **Takahiro Kamimoto**, Yoshihiro Deguchi, Yusuke Kiyota, Taku Takagi, Ryosuke Nakao

The University of Tokushima

“Development of two dimensional temperature and concentration measurement technology using CT tunable laser absorption spectroscopy”

Poster Presentation 24: P24 **Ryota Muranaka**, Yoshihiro Deguchi, Takahiro Kamimoto, Yuki Sisawa, Taku Takagi, Shin Kikuchi, Akikazu Kurihara, and Takashi Takata

The University of Tokushima

“Chemical Reaction Path Analysis of Sodium-Water Reaction Field Using Laser Diagnostics”

Poster Presentation 25: P25 **M. Safiul Alam**, Yoshihiro Deguchi, Takahiro Kamimoto

The University of Tokushima

“Reconstruction Characteristics of Simultaneous Gas Concentration and Temperature Based on Computed Tomography - Tunable Diode Laser Absorption Spectroscopy”

Poster Presentation 26: P26 **Kazuhide Nakayama**, Takao Ueda, Akira Nanasawa, Masayuki Tsukagoshi

The University of Tokushima

“Protection effect against steel corrosion in concrete due to surface treatment after applying electrochemical repair methods”

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Poster Presentation 27: P27     **Hiroki Gappa**, Takao Ueda, Akira Nanasawa, Masayuki Tsukagoshi  
The University of Tokushima  
“Complex deterioration of reinforced concrete due to chloride induced steel corrosion and ASR”

Poster Presentation 28: P28     **Wan-Ting Sun**, Shih-Hsuan Chiu, Hitoshi Takagi, Antonio N. Nakagaito  
The University of Tokushima  
“Effect of Silane Treatment on Mechanical Properties of TPA/HDDA/Halloysite Nanocomposites Prepared by Mask Projection Stereolithography Rapid Prototyping Technology”

Poster Presentation 29: P29     **Sho Kawakami**, Atsushi Mori, Ken Nagashima, Shuichi Hashimoto, Masanobu Haraguchi and Tsutomu Sawada  
The University of Tokushima  
“Observation of nanostructure for hybrid plasmonic-photonic crystal formed on gel-immobilized colloidal crystal”

Poster Presentation 30: P30     **Ryo Tokuoka**, Masafumi Miwa  
The University of Tokushima  
“Emergency Landing Control of Quadrotor with 1 Broken Rotor”

Poster Presentation 31: P31     **Shinya Marubashi**, Masafumi Miwa  
The University of Tokushima  
“Attitude control of inverted pendulum type airframe using thrust vectoring”

Poster Presentation 32: P32     **Chao Li** and Fuji Ren  
The University of Tokushima  
“Hybrid Chinese Text Classification Approach Using General knowledge from Baidu Baike”

Poster Presentation 33: P33     **Naoki Chatani**, Shinji Uemura and Masafumi Miwa  
The University of Tokushima  
“Vane control of quad rotor helicopter for horizontal maneuver”

Poster Presentation 34: P34     **Yoshihiro Sakai**  
The University of Tokushima  
“Development of Tailsitter VTOL using multicopter mechanism”

Poster Presentation 35: P35     **Kazuhiro Okamoto**  
The University of Tokushima  
“Hovering maneuver of humanoid robot equipping with duct fan unit”

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Poster Presentation 36: P36 **Yuki Ikiri**, Masaki Hashizume, Hiroyuki Yotsuyanagi, Hiroshi Yokoyama, Tetsuo Tada and Shyue-Kung Lu  
The University of Tokushima  
“Switch Circuit for Repairing Defective TSVs in a 3D Stacked Memory IC”

Poster Presentation 37: P37 **Narendra Sarda**, Takanori Hayashi, Minami Omune, Kento Shimizu, Kei-ichiro Murai, Geoffrey Waterhouse and Toshihiro Moriga  
The University of Tokushima  
“Effect of urea or thiourea on the structural and optical properties of perovskite type LaTiO<sub>2</sub>N”

Poster Presentation 38: P38 **Katsuya Nakata**, Xinzhi Wang, Tohru Fujii, Kei-ichiro Murai and Toshihiro Moriga  
The University of Tokushima  
“Preparation of sintered compacts and sputtered films with IGTO T-phase structure as transparent conductors”

Poster Presentation 39: P39 **Xiantao Jiang**, Tian Song, Jenq-Shiou Leu, and Takashi Shimamoto  
The University of Tokushima  
“High Efficiency Inter CU Size Prediction Algorithm for HEVC”

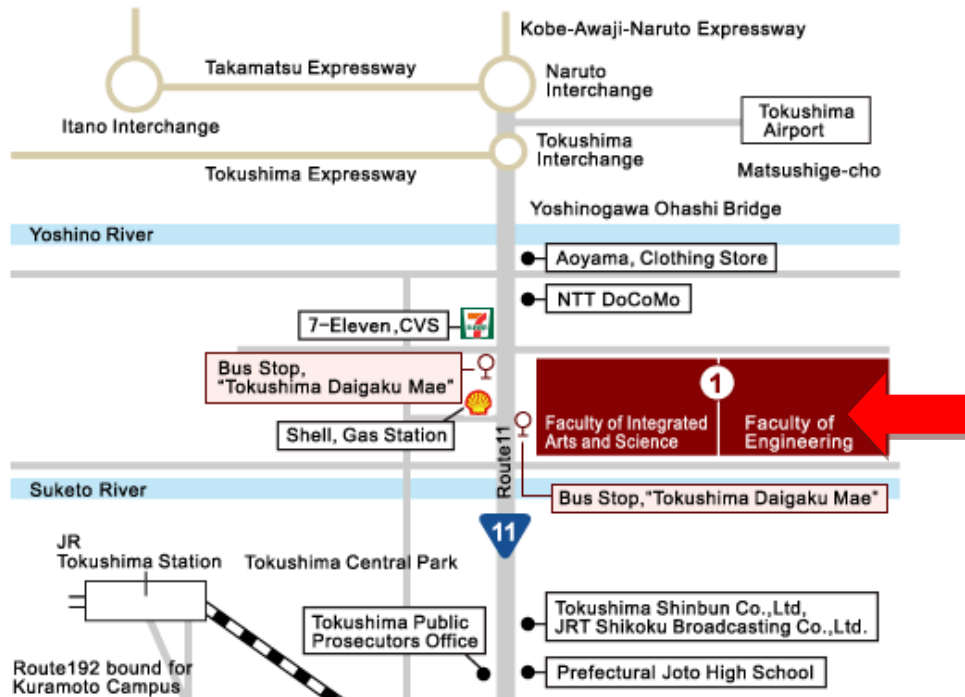
Poster Presentation 40: P40 **Wen Shi**, Xiantao Jiang, Tian Song, Jenq-Shiou Leu, Takashi Shimamoto  
The University of Tokushima  
“Efficient Intra Coding for HEVC Based on Spatial Locality”

Poster Presentation 41: P41 **Huijun Liu**, Fumitoshi Yagishita, Shoko Ueta, Masaki Nishiuchi, and Yasuhiko Kawamura  
The University of Tokushima  
“Synthesis, Structures and Optical Properties of Novel Fully Substituted 1,1'-(1,4-Phenylene)bis(pyrrole-3,4-dicarboxylate)”

Poster Presentation 42: P42 **Yusuke Tanatsugu**, Jinn P. Chu and Mikito Yasuzawa  
National Taiwan University of Science and Technology  
“Thin Film Metallic Glass coated Medical Needles for Property Improvements”

Poster Presentation 43: P43 **Nurfarlysa Zinodin**, Antonio Norio Nakagaito and Hitoshi Takagi  
The University of Tokushima  
“The Development of Alternative Acoustic Diaphragms Produced from Cellulose Nanofibres”

**Josanjima Campus**



**Faculty of Engineering**

