



# ICAI ONLINE 2021

International Conference on Advanced Imaging 2021

4 OCT - 8 OCT 2021

## Preliminary Program

Sponsored by



The Imaging Society of Japan (ISJ)



The Society of Photography and Imaging of Japan (SPIJ)



The Japanese Society of Printing Science and Technology (JSPST)



Society for Imaging Science and Technology (IS&T, USA)

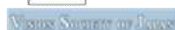
Cooperated by



The Institute of Image Electronics Engineers of Japan (IIEEJ)



The Institute of Image Information and Television Engineers (ITE)



Vision Society of Japan (VSJ)

Supported by



National Institute of Information and Communications Technology (NICT)  
NICT International Exchange Program



Chiba Convention Bureau and International Center (CCB-IC)

### CONCEPT

#### Join World Innovators, for Shaping the *Imaging Eco-System* and Generating New Value

Printing has attracted human intellectual evolution since Gutenberg's invention far before the industrial revolution. The printing technologies have been continuously expanding its fields with surrounding technologies not only to marking on medias but also to digital fabrication and the imaging technology field has been constructed. Imaging must be continuously developing since it is humans' nature, "expression". Now, the different imaging culture is found in each geographic area in the world. On the other hand, in other words, global-scale *Imaging Eco-system* is now ready for building. Therefore, it has important meanings that the conference is held in Asia in corporation with European and American imaging technologies and cultures. Now we will have the third around of ICAI in 2021 collocated with IS&T's Printing for Fabrication 2021 (Print4Fab2021). We will confirm again the technology and the culture developments across the geographic areas. Let us make new values.

#### Online Style Conference

ICAI2021 will be held in online style. In-person meeting at Makuhari Messe will NOT be held. All attendees have to make online registration no later than 24th Sept. Conference fee have to be paid no later than 27th Sept.

### CONFERENCE TOPICS / TECHNICAL AREAS

#### Imaging Materials and Devices

- Electrophotography / Inkjet
- Green technology / Environmental protection / Energy saving
- Electronic paper / Electronic imaging
- Digital fabrication / 3D printing
- Image input / Image processing
- Light source, color, sensibility KANSEI
- Simulation

#### Printing Technology and Recent Innovations

- Printing
- Prepress / Post press
- Patterning applied technology
- Electronic display application technology
- Basic / New technology / New field
- Education / History and culture

#### Capturing and Utilization of Image

- Image input & output technology
- Scientific use of imaging & photographic technologies
- Functional material and system for light and image
- Image processing and evaluation
- Expression and technology of photography
- Image preservation, archives, history
- Nuclear emulsion plate and applications

### ICAI 2021 Conference Committee

#### ICAI 2021 General Chair

Toshifumi Satoh (ISJ), Tokyo Polytechnic University

#### ICAI 2021 Co-General Chairs

Teruaki Mitsuya (ISJ), Ricoh Company, Ltd.  
Yasushi Nakano (SPIJ), Konica Minolta Science and Technology Foundation  
Shigeru Takahara (JSPST), Chiba University

#### ICAI 2021 Program Chair

Nobuyuki Nakayama (ISJ), FUJIFILM Business Innovation Corp.  
Kenji Kagitani (ISJ), Ricoh Company, Ltd.  
Nobuaki Kawano (ISJ), Canon Inc.  
Atsushi Tomotake (ISJ), Konica Minolta, Inc.  
Hiroaki Iino (SPIJ), Tokyo Institute of Technology

Kenichi Kuge (SPIJ), Chiba University  
Junichi Hanna (SPIJ), Tokyo Institute of Technology  
Katsumi Yamada (SPIJ), Tokyo Polytechnic University  
Ryuichi Nakamura (JSPST), Toppan Printing Co., Ltd.  
Tomoyoshi Mitsumoto (JSPST), Fujifilm Corporation  
Makoto Omodani (JSPST), Tokyo Denki University

### REGISTRATION

• Registration fees:

Type of Attendee	Early Bird Registration (Until Sept. 17, 2021)		Normal Registration	
	215USD	24,000JPY	240USD	27,000JPY
Member*	215USD	24,000JPY	240USD	27,000JPY
Non-member	270USD	30,000JPY	315USD	35,000JPY
Student (ID required)	25USD	3,000JPY	35USD	4,000JPY

\* A member of one of the following Societies and oversea attendees:

- The Imaging Society of Japan ISJ
- The Society of Photography and Imaging of Japan SPIJ
- The Japanese Society of Printing Science and Technology JSPST
- The Institute of Image Electronics Engineers of Japan IIEEJ
- The Institute of Image Information and Television Engineers ITE
- Vision Society of Japan VSJ
- The Society for Imaging Science and Technology IS&T

• Conference registration fee includes:

Admission to all technical sessions/ Proceedings (hardcopy and online digital library)/ Entrance to the exhibition/ Discount of Print4Fab2021 registration fee

• Online registration: <http://www.isj-imaging.org/event/conference/ICAI2021/>



## WEEK AT-A-GLANCE

Zoom online					
	Day 1 4th Oct., 2021 Monday	Day 2 5th Oct., 2021 Tuesday	Day 3 6th Oct., 2021 Wednesday	Day 4 7th Oct., 2021 Thursday	Day 5 8th Oct., 2021 Friday
9:00		<b>Products Exhibition</b> -Short Presentation-		<b>SPIJ</b>  Input and Output of Images	<b>ITE Special Talks</b>  8K Video Technologies
10:00	<b>Opening Remarks</b> <b>Keynote Talk</b> Mr. Kazuo Satomi	<b>ISJ-Print4Fab Joint</b> ISJ IJ Analysis	<b>ISJ</b>  Device	<b>SPIJ</b>  Radiation Track Imaging	
11:00	<b>Interactive</b>  -Short Presentation-	<b>ISJ Editor-in-Chief</b> Award Invite Talk			
12:00					
13:00		<b>ISJ-Print4Fab Joint</b> ISJ IJ Head/Ink	<b>ISJ 2018 Research</b> Award Invite Talk <b>ISJ 2019 Research</b> Award Invite Talk	<b>ASPT</b> Printing Technologies	<b>Keynote Talk</b> Prof. Aran Hansuebsai
14:00	<b>Interactive</b>  -Poster Exhibition-		<b>ISJ</b>  Electrophotography	<b>ASPT</b> Printing Material	<b>ISJ Special Talks</b> Evolution of Imaging Eco- System
15:00		<b>ISJ-Print4Fab Joint</b> Print4Fab Talks		<b>ASPT</b>  Color	
16:00			<b>ISJ</b> Image Processing		ASPT: Asian Symposium on Printing Technology

## KEYNOTE PRESENTATION (Print4Fab/ICAI joint)

### • Opening Keynote: Development of a Film Cleaning System that Enables Film Reuse and Recycling

**Speaker: Mr. Kazuo Satomi**, Executive Managing Director of Japan Printing Machinery Association

Abstract: Even in the shrinking printing market, film printing for food packaging and other applications is on the rise. On the other hand, the accumulation of waste plastics that cannot be recycled, incinerated, or exported, and their disposal is a challenge not only for Japan but also for global ecosystem. We are working on the development of a system to remove ink from the huge amount of waste plastic used for test printing in plastic printing factories, and reuse it as test printing film, and eventually recycle it.

### • The Status and Trends of ASEAN Printing Industry and its Challenges

**Speaker: Prof. Aran Hansuebsai**, Dept. of Imaging and Printing Technology, Faculty of Science, Chulalongkorn University

Abstract: Printing industry is changing rapidly which is threatened by several factors such as information technology and digital technology. This threat gives an opportunity in that "printed" products can be diversified by new processes derived from these knowledges. Sustainability, energy and environment issues will increasingly dominate the economic and social agenda of the 21st century and will be the driving force of a new industrial revolution as well. Nowadays most printing companies are likely to move towards more knowledge intensive processes of production. This paper reported the status and trends of printing industry in ASEAN countries. The weakness and success factors were discussed, including printing education in this region. The question is, how the printers can survive in competitive markets, particularly after COVID-19 pandemic.

## PRESENTATION TIME

- Presentation time allotted for each type of paper is as follows:

Type of Paper	Allotted Time
Keynote Talks	50 minutes (including 5-minute Q&A)
Invited Papers	30 minutes (including 5-minute Q&A)
Regular Papers (Oral)	20 minutes (including 5-minute Q&A)
Regular Papers (Interactive)	3 minutes oral presentation (without Q&A) and 60 min. poster exhibition



## TECHNICAL PROGRAM

Monday, October 4th

10:00-10:10 Session 1: Opening

Opening Remark

CHAIRS: [Nobuyuki Nakayama](#) and [Toshifumi Satoh](#)

LOCATION: [Zoom Main Room](#)

10:00 [Toshifumi Satoh](#)

**General Chair Greeting**

10:05 [Chiaki Suzuki](#)

**Executive Committee Chair Greeting**

10:10-11:00 Session 2: ICAI-Print4Fab Joint Keynote

Opening Keynote "The Imaging Eco-system"

CHAIRS: [Teruaki Mitsuya](#) and [Toshifumi Satoh](#)

LOCATION: [Zoom Main Room](#)

10:10 [Kazuo Satomi](#)

**Development of a Film Cleaning System That Enables Film Reuse and Recycling**

11:10-12:25 Session 3: Interactive: Short Presentation

LOCATION: [Zoom Main Room](#)

11:10 [Kunio Sakamoto](#) and [Takeru Hasegawa](#)

**Unidirectional Window Decals Using Resin Printing Ink for Making Dye-Doped Layer Which Enables to Make Invisible from Back Side**

11:13 [Kunio Sakamoto](#) and [Ryo Sakata](#)

**Unidirectional Window Decals Using Intaglio Resin Printings for Making Micro Optical Prisms Which Enable to Make Invisible from Back Side**

11:16 [Takahiro Kakegawa](#) and [Koji Fujimoto](#)

**Micropillar Surfaces for Generation of Three-Dimensional Skin Models in vitro**

11:19 [Yukihide Shiraishi](#), [Hiroya Sawai](#), [Shinichi Hata](#), [Shunsuke Kobayashi](#) and [Naoki Toshima](#)

**Electro-Optic Properties of Liquid Crystal Devices by Doping with Supramolecule-Stabilized Nanocolloids**

11:22 [Rina Iijima](#), [Kyota Kamamoto](#) and [Yoshiyuki Tagawa](#)

**Ejection Volume of Highly Viscous Jets**

11:25 [Rikuya Watanabe](#), [Naoki Takeda](#), [Keitaro Kasuya](#), [Kosuke Takahashi](#), [Kojiro Uetani](#), [Shota Tsuneyasu](#) and [Toshifumi Satoh](#)

**High Luminance Bottom-Emission Type Powder EL Device with High Transparent Substrate**

11:28 [Katsumi Yamada](#), [Fukuro Koshiji](#) and [Takayuki Uchida](#)

**Improvement in Electrochromic Stability of Conductive Polymers with Nano-Structured Electrode**

11:31 [Ryota Saito](#), [Satoru Tsukada](#) and [Katsuyoshi Hoshino](#)

**Preparation of Metallic Glossy Films Using 3-Alkoxythiophenes**

11:34 [Yudai Teramoto](#), [Katsuyoshi Hoshino](#) and [Satoru Tsukada](#)

**Triboelectrification Behavior of Polyester Films Doped with Titanium Oxides**

11:37 [Reitaro Hattori](#)

**Organic Floating-Gate Memory for Image Sensing**

11:40 [Ryuki Ozawa](#), [Kazuki Nakamura](#) and [Norihisa Kobayashi](#)

**Ultrafast Blue Electrochemiluminescence Based on Photon-Upconversion Using DNA/Ru(II) Complex Film**

11:43 [Jehong Park](#), [Mohammad M Afandi](#), [Yongseok Jeong](#) and [Jongsu Kim](#)

**Electroluminescence of Y2O3:Eu3+ Thin Film Prepared by Rapid Thermal Annealing Based on Solution Process**

11:46 [Mohammad M. Afandi](#), [Jehong Park](#) and [Jongsu Kim](#)

**Blue-Green Tunable Electroluminescent Device of Y2SiO5 Phosphor Activated by Tb3+ Ions**

11:49 [Ayumi Yoshida](#), [Ryohei Kobayashi](#), [Yuki Yonetoku](#), [Kazuki Nakamura](#) and [Norihisa Kobayashi](#)

**Photophysical Properties of Luminescent Leuco Dye Introduced into Mesoporous Silica**



## TECHNICAL PROGRAM

- 11:52 [Fukuro Koshiji](#), [Yuri Yamada](#), [Yoji Yasuda](#), [Takayuki Uchida](#) and [Katsumi Yamada](#)  
**Investigation of Radiation Efficiency of Antenna Using Transparent Conductive Thin Film**
- 11:55 [Kotchaporn Thangunpai](#), [Donghao Hu](#) and [Toshiharu Enomae](#)  
**Development of Polycaprolactone Grafted with Maleic Anhydride**
- 11:58 [Yukihiro Tsugita](#) and [Shuichi Maeda](#)  
**Polypyrrole-ITO Conducting Inks on Flexible Substrates**
- 12:01 [Asahi Ishikawa](#), [Kayo Hirose](#) and [Shinjiro Umezumi](#)  
**Visualization of Atrial Flutter Utilizing Attractor Reconstruction for Electrocardiogram**
- 12:04 [Akihiro Fukami](#) and [Shuichi Maeda](#)  
**Visible and Invisible QR Code on Metal for the New Type of Anti-Counterfeiting by Anodic Oxidation Method**
- 12:07 [Makoto Mizoshiri](#) and [Suguru Hamadate](#)  
**Development of Face Shield Utilizing Visualization Technology**
- 12:10 [Fairuz Syazana](#) and [Muhammad Yusuf Masod](#)  
**Design and Development of Coffee Carrier with AR AS Added Value Innovation**
- 12:13 [Muhammad Yusuf Masod](#)  
**Analysing the Development of Malaysian Printing Industry: from Can Perspective**
- 12:16 [Asma Nayli Alias](#) and [Muhammad Yusuf Masod](#)  
**Design and Packaging Development for Skincare Lotions**
- 12:19 [Yeji Kim](#) and [Yoshio Nishi](#)  
**Transparent, Flexible and Conductive Carbon Nanotube Films: Application to Foldable Touch Panel**
- 12:22 [Hafy Abd Halim](#), [Muhammad Yusuf Masod](#), [Mastura Omar](#) and [Nurhanis Nordin](#)  
**The Invention of Robotic in Education Module Box**

13:30-14:30 Session 4: Interactive: Poster Exhibition Group 1

LOCATION: [Zoom Breakout Room](#)

[Kunio Sakamoto](#) and [Takeru Hasegawa](#)

**Unidirectional Window Decals Using Resin Printing Ink for Making Dye-Doped Layer Which Enables to Make Invisible from Back Side**

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[Yudai Teramoto](#), [Katsuyoshi Hoshino](#) and [Satoru Tsukada](#)

**Triboelectrification Behavior of Polyester Films Doped with Titanium Oxides**

14:40-15:40 Session 5: Interactive: Poster Exhibition Group 2

LOCATION: [Zoom Breakout Room](#)

[Reitaro Hattori](#)

**Organic Floating-Gate Memory for Image Sensing**

[Ryuki Ozawa](#), [Kazuki Nakamura](#) and [Norihisa Kobayashi](#)

**Ultrafast Blue Electrochemiluminescence Based on Photon-Upconversion Using DNA/Ru(II) Complex Film**





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[Yukihiro Tsugita](#) and [Shuichi Maeda](#)

**Polypyrrole-ITO Conducting Inks on Flexible Substrates**

15:50-16:50 Session 6: Interactive: Poster Exhibition Group 3

LOCATION: [Zoom Breakout Room](#)

[Asahi Ishikawa](#), [Kayo Hirose](#) and [Shinjiro Umezumi](#)

**Visualization of Atrial Flutter Utilizing Attractor Reconstruction for Electrocardiogram**

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**Visible and Invisible QR Code on Metal for the New Type of Anti-Counterfeiting by Anodic Oxidation Method**

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**The Invention of Robotic in Education Module Box**

Tuesday, October 5th

09:00-10:00 Session 7: ICAI Exhibits: Short Presentation

LOCATION: [Zoom Main Room](#)

10:00-11:20 Session 8A: ISJ - Print4Fab Joint: Inkjet Analysis

CHAIRS: [Satoshi Hasebe](#) and [Yuko Hayama](#)

LOCATION: [Zoom Main Room](#)

10:00 [Hideaki Nishimura](#) and [Masami Kadonaga](#)

**Analysis of Evaporation Behavior of Multi-Component Liquid Film in Forced Convection Field**

10:20 [Eri Iijima](#)

**A Numerical Investigation for Droplet Behavior in Inkjet System Related to Print Quality**

10:40 [Teruyuki Fukuda](#), [Daisuke Hamada](#), [Satoshi Tanaka](#), [Takeshi Ashizawa](#) and [Iain Blake](#)

**Prediction of Jetting Stability of Pigment Dispersions by Zeta Potential Distribution Measurement**

11:00 [Hiromasa Moriyama](#), [Yoshihiro Harada](#), [Hideaki Nishimura](#), [Masami Kadonaga](#), [Koichi Kato](#) and [Kazuyoshi Fushinobu](#)

**Effect of Surrounding Droplets on Evaporation Rate of Pico-Liter Droplet on Substrate**

10:00-16:00 Session 8B: ICAI Exhibits

LOCATION: [Zoom Breakout Room](#)

11:40-12:10 Session 9: Presentation of 2019 ISJ Editor-in-Chief Award

CHAIRS: [Kazuki Nakamura](#) and [Yuki Yokoyama](#)

LOCATION: [Zoom Main Room](#)

11:40 [Satoshi Hasebe](#), [Takeshi Zengo](#), [Toshinobu Hamazaki](#), [Yukari Motosugi](#) and [Takuma Ishihara](#)

**Editor-in-Chief Award : Applicability of Laser Drying System to Production Inkjet Printing System and Its Problems [Invited]**



## TECHNICAL PROGRAM

**13:10-14:30** Session 10: ISJ - Print4Fab Joint: Inkjet Head/Ink

CHAIRS: [Masahiko Fujii](#) and [Atsushi Tomotake](#)

LOCATION: [Zoom Main Room](#)

13:10 [Noriaki Ozawa](#)

**Development of Water-based Ink for High-Speed Cutsheet Inkjet**

13:30 [Jun Yamanobe](#)

**Technologies in High Quality Inkjet Components "Samba JPC"**

13:50 [Kyota Kamamoto](#), [Hajime Onuki](#) and [Yoshiyuki Tagawa](#)

**Painting Technology for Highly Viscous Liquid Using Impact**

14:10 [Muneaki Iwata](#), [Akihiro Kaneko](#) and [Takashige Omatsu](#)

**Micro-Patterning Based on Optical Vortex Laser Induced Forward Transfer**

**14:50-16:10** Session 11: ISJ - Print4Fab Joint: Print4Fab Inkjet

CHAIRS: [Masahiko Fujii](#) and [Yoshiaki Kondoh](#)

LOCATION: [Zoom Main Room](#)

Wednesday, October 6th

**10:00-11:20** Session 12A: ISJ: Device

CHAIRS: [Makoto Omodani](#) and [Toshifumi Satoh](#)

LOCATION: [Zoom Main Room](#)

10:00 [Karin Wakatsuki](#), [Chiemi Fujikawa](#) and [Makoto Omodani](#)

**Improvement of Performance of Volumetric 3D Display using a Rotating Spiral Screen**

10:20 [Takuya Shima](#), [Kenta Suzuki](#), [Masahito Watanabe](#) and [Hirotoshi Terao](#)

**Decorative and Conductive Lines Printing with On-Demand Melt Thermal Transfer Printer**

10:40 [Shunsuke Kimura](#), [Tomoko Sugita](#), [Kazuki Nakamura](#) and [Norihisa Kobayashi](#)

**Vivid Color Switching in the Electrochromic System Based on Reversible Deposition and Dissolution of Silver toward Color Reflective Display**

11:00 [Haruki Tsuji](#) and [Yue Bao](#)

**A Study on Automatic Holographic Optical Element Array Creation System**

**10:00-16:00** Session 12B: ICAI Exhibits

LOCATION: [Zoom Breakout Room](#)

**13:00-13:30** Session 13: Presentation of 2018 ISJ Research Award by Konica Minolta Science and Technology Foundation

CHAIRS: [Yumiko Kishi](#) and [Norihisa Kobayashi](#)

LOCATION: [Zoom Main Room](#)

13:00 [Hiroyuki Yaguchi](#)

**A Development of Legibility Evaluation Method for Fonts Based on Image Processing and Development of Universal Design Fonts and Other Applications [Invited]**

**13:30-14:00** Session 14: Presentation of 2019 ISJ Research Award by Konica Minolta Science and Technology Foundation

CHAIRS: [Takeshi Menjo](#) and [Teruaki Mitsuya](#)

LOCATION: [Zoom Main Room](#)

13:30 [Yosuke Tsukiyama](#) and [Isami Nitta](#)

**Influence of The Paper Lint on the Frictional Property of Rubber Rollers [Invited]**

**14:20-15:40** Session 15: ISJ: Electrophotography

CHAIRS: [Nobuyuki Nakayama](#) and [Daichi Yamaguchi](#)

LOCATION: [Zoom Main Room](#)

14:20 [Yoshihiro Hattori](#)

**Consideration of the Counter Charge Traveling Distance on the Charge Transport Equilibrium Mechanism with a Dynamic Procedure**

14:40 [Yoshiki Nakane](#), [Yu Mukobayashi](#) and [Yoshihiro Hattori](#)

**Study on Internal Stress Vibration and Edge Wear of a Cleaning Blade**

15:00 [Yuki Yokoyama](#), [Nobuyuki Nakayama](#), [Toshihiko Suzuki](#) and [Wataru Suzuki](#)

**Visualization Analysis of "Starvation" Defect at Edge of Halftone Image in Development Process of Electrophotography**

15:20 [Nobuyuki Nakayama](#), [Wataru Suzuki](#), [Yutaka Kanai](#) and [Toshihiko Suzuki](#)

**Analysis of Development Characteristics in Electrophotography Process**



## TECHNICAL PROGRAM

### 16:00-16:40 Session 16: ISJ: Image Processing

CHAIRS: [Kenji Kagitani](#) and [Natsuko Minegishi](#)

LOCATION: [Zoom Main Room](#)

16:00 [Yuya Suzuki](#) and [Yue Bao](#)

**Beef Grade Evaluation by Fractal Analysis of Beef Marbling**

16:20 [Kenji Kagitani](#) and [Keiji Uchikawa](#)

**Differences in Unified Material Appearance of Real Objects**

Thursday, October 7th

### 09:00-10:20 Session 17: SPIJ: Input and Output of Images

CHAIR: [Yasushi Nakano](#)

LOCATION: [Zoom Main Room](#)

09:00 [Hiroaki Iino](#), [Koichi Kondo](#) and [Jun-Ichi Hanna](#)

**Fast Speed Fabrication of Patterned Organic Semiconductor Thin Films by Blade Coating Using Liquid Crystallinity and Their Transistor Characteristics**

09:20 [Hideaki Yoshida](#)

**Renewal of the Camera Resolution Measurement Software "HYRes"**

09:40 [Takayuki Uchida](#)

**Study of the Correction and Effect of the Spectrum of the Light Source on the Data Acquired by the UAV Multispectral Camera**

10:00 [Yoshinori Matsuzawa](#)

**Trends and Future in the Camera Industry and Its Technologies**

### 10:00-16:00 Session 18: ICAI Exhibits

LOCATION: [Zoom Breakout Room](#)

### 10:40-12:00 Session 19: SPIJ: Radiation Track Imaging

CHAIR: [Hiroshi Shibuya](#)

LOCATION: [Zoom Main Room](#)

10:40 [Seigo Miyamoto](#), [Shogo Nagahara](#), [Kunihiro Morishima](#), [Toshiyuki Nakano](#), [Masato Koyama](#) and [Yusuke Suzuki](#)  
**Three-Dimensional Density Structure Imaging of the Izu-Omuroyama Volcano by Multi-Directional Muography**

11:00 [Hitoshi Oshima](#), [Hiroshi Shibuya](#), [Satoru Ogawa](#), [Tomokazu Matsuo](#), [Yusuke Morimoto](#), [Tsutomu Fukuda](#), [Osamu Sato](#), [Shigeki Aoki](#), [Tsuyoshi Nakaya](#), [Tatsuya Kikawa](#) and [Yoshinari Hayato](#)

**Measurement of Neutrino Charged Interactions on Iron Using a Nuclear Emulsion Detector in the NINJA Experiment**

11:20 [Tomokazu Matsuo](#) and [Ninja Collaboration](#)

**Current Status and Future Plan of NINJA Experiment at J-PARC**

11:40 [Kana Saeki](#), [Tatsuhiko Naka](#), [Takuya Shiraishi](#), [Atsuhiko Umemoto](#), [Ryuta Kobayashi](#), [Kenichi Kuge](#), [Osamu Sato](#), [Takashi Asada](#), [Yasushi Hoshino](#) and [Satoshi Kodaira](#)

**Temperature and Ion-Velocity Dependence of Crystal Sensitivity of Ultra-Fine-Crystal Nuclear-Emulsion Plate**

### 13:00-13:05 Session 20: ASPT: JSPST Greeting

LOCATION: [Zoom Main Room](#)

13:00 [Toshiharu Enomae](#)

**JSPST Greeting**

### 13:05-14:05 Session 21: ASPT: Printing Technologies

CHAIRS: [Makoto Omodani](#) and [Eiichi Umehara](#)

LOCATION: [Zoom Main Room](#)

13:05 [Muhammad Yusuf Masod](#)

**Digital Workflow Output Test in Commercial Printing [Invited]**

13:35 [Krairap Charoensoapa](#), [Aran Hansuebsai](#) and [Kazuhiro Manseki](#)

**Study the TiO<sub>2</sub> Thin Film Characteristics for Dye Sensitized Solar Cell by LDM 3D Printing System [Invited]**



## TECHNICAL PROGRAM

14:15-15:05 Session 22: ASPT: Printing Materials

CHAIRS: [Krairap Charoensopa](#) and [Ryuichi Nakamura](#)

LOCATION: [Zoom Main Room](#)

14:15 [Md. Khalilur Rahman](#), [Md. Abu Mosa](#) and [Kye-Si Kwon](#)

**Copper Oxide (CuO) Fine Line Fabrication by Printing Method and Green Laser Sintering to form Cu Conductive line**

14:35 [Tae-Wook Kim](#)

**Two-Dimensional Single-Crystalline Copper Nanosheets as a Conductive Filler for Electronic Ink Applications [Invited]**

15:15-16:45 Session 23: ASPT: Color

CHAIRS: [Tomoyoshi Mitsumoto](#) and [Yoshihisa Shirasaki](#)

LOCATION: [Zoom Main Room](#)

15:15 [Youngshin Kwak](#)

**Color Appearance of Lighting [Invited]**

15:45 [Tohru Sugiyama](#)

**Guidelines for Viewing Conditions of Printed Matter Using LED Lightings for Color Evaluation [Invited]**

16:15 [Yoko Mizokami](#)

**Color and Material Appearance of Object Surface Influenced by Lighting Environment [Invited]**

Friday, October 8th

09:00-12:00 Session 24: ITE: 8K Video Technologies

LOCATION: [Zoom Main Room](#)

10:00-16:00 Session 25: ICAI Exhibits

LOCATION: [Zoom Breakout Room](#)

13:00-13:50 Session 26: ICAI-Print4Fab Joint Keynote

CHAIR: [Toshiharu Enomae](#)

LOCATION: [Zoom Main Room](#)

13:00 [Aran Hansuebsai](#)

**The Status and Trends of ASEAN Printing Industry and Its Challenges**

14:00-15:30 Session 27: ISJ: Evolution of Imaging Eco-system in the New Normal Era

CHAIRS: [Hiroshi Nakai](#) and [Nobuyuki Nakayama](#)

LOCATION: [Zoom Main Room](#)

14:00 [Hiroshi Yamazaki](#)

**How Does Telework Affect Paper Output? [Invited]**

14:30 [Masahiko Fujii](#)

**3D Printer, Society Changes It, or It Changes Society? - The Exploration and Practice of the Nature of Digital is Asked Now - [Invited]**

15:00 [Katsuyuki Kozake](#)

**Containers and Packaging in Post-COVID-19 era and Eco-Printing Solution [Invited]**

### Products exhibition

- The online products exhibition will be held from 5th to 8th October, 10:00-16:00 using Zoom breakout room. Short presentations are planned 9:00-9:40 on 5th October.

#### Invitation to Exhibitors

- More than 200 scientists, technical experts and leaders of imaging academia and industries will gather online for ICAI2021. The committee plans to have an exhibition of printing and imaging related products. If you would like to exhibit at ICAI2021, please visit ICAI2021 website and see detail of the exhibition information and application form. <http://www.isj-imaging.org/event/conference/ICAI2021>

## INFORMATION/ ICAI Office

- The program etc. are tentative. It will be revised if necessary, for example, the situation of COVID-19 affects it. Please refer to the ICAI2021 website for the latest information. Please see more detail of the venue and hotel information on the website. <http://www.isj-imaging.org/event/conference/ICAI2021>
- ICAI office: c/o Tokyo Polytechnic University, 2-9-5, Honcho, Nakano-ku, Tokyo, 164-8678 Japan  
Tel : +81-3-3373-9576 (Open 10:00 - 17:00 on weekdays), Email: [icai@isj-imaging.org](mailto:icai@isj-imaging.org)