



# VANJ CONFERENCE 2020

Science and Technology in the New Normal

International Conference

<https://conf.vanj.jp>

**2020 November 28-29**  
**Online Conference**  
**Connect, Communicate, Create!**



The conference will include:

12 special sessions, 1 plenary talk, 1 excellent young researchers session, poster session and much more

## Special Sessions

- **SS1:** Emerging Nanomaterials
- **SS2:** MEMS and IoT
- **SS3:** Very large-scale integration (VLSI) circuit and Applications
- **SS4:** Deep learning in NLP
- **SS5:** Soft Robotics
- **SS6:** COVID-19 Pandemic and Its Impacts on Environment and Global Progress Towards Achieving the UN Sustainable Development Goals (SDGs)
- **SS7.1:** Recent advances in Biomedicine: From disease mechanisms to therapeutic strategies

- **SS7.2:** Public Health: Sustainable and effective strategies to cope with COVID-19 in the New Normal
- **SS8:** Roles and Applications of Power Converters, Energy Storage Systems and EVs in Grids with High Penetration of Renewable Energy Sources
- **SS9:** Policies, Economic and Business Strategy
- **SS10:** Vietnamese Academic Networking
- **SS11:** Neutrino
- **SS12:** Drug Delivery System



Vietnamese Academic Network in Japan  
一般社団法人在日本越南人学術ネットワーク



Center for Spintronics Research Network  
Graduate School of Engineering, The University of Tokyo

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**Assist. Prof. Le Duc Anh, Chair**  
The University of Tokyo, Japan



**Assist. Prof. Dao Thi Ngoc Anh, Chair**  
Tohoku University, Japan



**Dr. Ta Duc Tung, Co-chair**  
The University of Tokyo, Japan

## ORGANIZER



**Vietnamese Academic Network in Japan**  
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## CO-ORGANIZER



**Center for Spintronics Research Network**  
Graduate School of Engineering, The University of Tokyo

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Dr. Pham Ngoc Bao, Institute for Global Environmental Strategies, **Special Session Chair**  
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Assist. Prof. Le Duc Anh, The University of Tokyo  
Nguyen Anh Sao, The University of Tokyo  
Dr. Nguyen Duy Dinh, Aichi University  
Dr. Nguyen Hue Minh, Yokohama National University  
Dr. Pham Van Long, Tokyo Metropolitan University  
Dr. Tran Huynh Ngoc, Toyota Technological Institute  
Dr. Tran Phuong Thao, The University of Tokyo  
Tran Van Sang, PhD candidate, The University of Tokyo  
Vu Thi My Hanh, MD, PhD candidate, Gifu University  
Dr. Nguyen Huynh Duy Khang, Tokyo Institute of Technology

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Tran Van Sang, PhD candidate, The University of Tokyo  
Vo Van Tuan, PhD candidate, The University of Tokyo

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Tran Van Sang, PhD candidate, The University of Tokyo, **TC Chair**  
Vo Van Tuan, PhD candidate, The University of Tokyo, **TC Co-chair**  
Do Thi Thuy Quyen, PhD candidate, Ochanomizu University

# SUMMARY TIMETABLE

VANJ CONFERENCE 2020

## **TECHNICAL PROGRAM**

# **SPECIAL SESSIONS**



# VANJ CONFERENCE 2020

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## EMERGING NANOMATERIALS

SS1



Assoc. Prof.  
PHAM NAM HAI

TOKYO INSTITUTE OF TECHNOLOGY,  
JAPAN



Assist. Prof.  
DUONG DINH LOC  
SUNGKYUNKWAN UNIVERSITY,  
KOREA



Prof. MASAAKI TANAKA

THE UNIVERSITY OF TOKYO,  
JAPAN



Dr. HISASHI INOUE

NATIONAL INSTITUTE OF  
ADVANCED INDUSTRIAL  
SCIENCE AND TECHNOLOGY, JAPAN



Dr. XUAN CHI TRANG  
MONASH UNIVERSITY, AUSTRALIA



Dr. LE VAN LICH

HANOI UNIVERSITY OF  
SCIENCE AND TECHNOLOGY, VIETNAM

**Description:** This session focuses on the potential for the emerging nanomaterials by an interdisciplinary research including superconductor, energy materials, and spin electronics. Our goal is given to combining such experimental and computational insights to understand and drive the design of the emerging materials.

**Chair:** Assist. Prof. Nguyen Tuan Hung, Tohoku University, Japan

**Co-Chair:** Assist. Prof. Le Duc Anh, The University of Tokyo, Japan



# VANJ CONFERENCE 2020

Science and Technology in the New Normal

## MEMS AND IOT

SS2



Dr. YUSUKE TAKEI

NATIONAL INSTITUTE OF  
ADVANCED INDUSTRIAL SCIENCE  
AND TECHNOLOGY (AIST), JAPAN



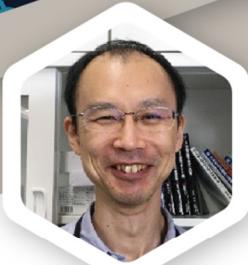
Assoc. Prof.  
YOSHIO MITA

THE UNIVERSITY OF TOKYO, JAPAN



Assoc. Prof.  
TETSUO KAN

THE UNIVERSITY OF  
ELECTRO-COMMUNICATIONS, JAPAN



Dr. HIRONAO OKADA

NATIONAL INSTITUTE OF  
ADVANCED INDUSTRIAL SCIENCE  
AND TECHNOLOGY (AIST), JAPAN



Dr. TOAN DINH

GRIFFITH UNIVERSITY, AUSTRALIA



Dr. NGUYEN THANH VINH

NATIONAL INSTITUTE OF  
ADVANCED INDUSTRIAL SCIENCE  
AND TECHNOLOGY (AIST), JAPAN



Dr. HIROAKI HONMA

THE UNIVERSITY OF TOKYO, JAPAN



Dr. NGUYEN CHI CUONG

SAIGON HITECH PARK, VIETNAM



Dr. YUKI OKAMOTO

NATIONAL INSTITUTE OF  
ADVANCED INDUSTRIAL SCIENCE  
AND TECHNOLOGY (AIST), JAPAN

**Description:** The topics for discussion include MEMS sensors, MEMS energy harvesting devices for IoT, wireless communication technology for sensor network, practical applications of MEMS devices in IoT (in healthcare, infrastructure monitoring, environment monitoring, smart city, etc.), and the future directions of MEMS and IoT.

**Chair:** Dr. Nguyen Thanh Vinh, AIST, Japan

**Co-Chair:** Dr. Yuki Okamoto, AIST, Japan



## VERY LARGE-SCALE INTEGRATION (VLSI) CIRCUITS AND APPLICATIONS

SS3



Assoc. Prof.  
HOANG VAN PHUC

VICE DIRECTOR, INSTITUTE OF  
SYSTEM INTEGRATION LE QUY DON  
TECHNICAL UNIVERSITY, VIETNAM



Assoc. Prof.  
HIROMITSU AWANO  
GRADUATE SCHOOL OF INFORMATICS,  
KYOTO UNIVERSITY, JAPAN



Prof. KOICHIRO ISHIBASHI

DIRECTOR, UEC ASEAN RESEARCH  
AND EDUCATION CENTER  
PROFESSOR, THE UNIVERSITY OF  
ELECTRO-COMMUNICATIONS, JAPAN



Assist. Prof.  
NGUYEN NGOC MAI KHANH

SYSTEM DESIGN CENTER (D.LAB),  
THE UNIVERSITY OF TOKYO, JAPAN



Dr. DINH THANH VIET

NXP SEMICONDUCTORS,  
BELGIUM

**Description:** This session provides a forum for the very large-scale integration (VLSI) circuit and application communities to share the experience in integrated circuit design, and heterogeneous system integration for emerging IoT, biomedical, and 5G applications, with emphasis on the research collaboration between Japan and Vietnam and discussion on the future direction of VLSI for Vietnam.

**Chair:** Assist. Prof. Nguyen Ngoc Mai Khanh, The University of Tokyo, Japan

**Co-chair:** Dr. Pham Van Long, Tokyo Metropolitan University, Japan



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## DEEP LEARNING IN NLP SS4



**Prof. NGUYEN LE MINH**  
SCHOOL OF INFORMATION SCIENCE,  
JAPAN ADVANCED INSTITUTE  
OF SCIENCE AND TECHNOLOGY



**Dr. NGUYEN LUU THUY NGAN**  
FACULTY OF INFORMATION SCIENCE AND ENGINEERING,  
THE UNIVERSITY OF INFORMATION TECHNOLOGY,  
VIETNAM NATIONAL UNIVERSITY HO CHI MINH CITY



**Dr. NGHIEM QUOC MINH**  
NATIONAL CENTRE FOR TEXT MINING,  
UNIVERSITY OF MANCHESTER, UNITED KINGDOM



**Dr. NGUYEN SON HOANG QUOC**  
KDDI RESEARCH INC., JAPAN

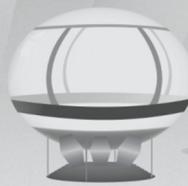
**Description:** Thanks to deep learning, we can build many useful NLP applications even beyond the ability of human beings. In this section, we will share our experiences with cutting-edge technologies, which significantly help our modern life. On the other hand, attackers take advantage of these technologies to leverage malicious purposes such as fake COVID posts, amazon reviews, and political news. We will present the emerge attacks based on deep learning and how to prevent them.

**Chair:** Dr. Hoang-Quoc Nguyen-Son, KDDI Research Inc., Japan



## SOFT ROBOTICS

SS5



Assoc. Prof.  
TAKUYA UMEDACHI  
FACULTY OF TEXTILE SCIENCE  
AND TECHNOLOGY,  
SHINSHU UNIVERSITY



Assoc. Prof.  
HIROTO TANAKA  
DEP. OF MECHANICAL ENGINEERING,  
TOKYO INSTITUTE OF TECHNOLOGY



Dr. NGUYEN VAN PHO  
SOFT HAPTICS LAB,  
SCHOOL OF MATERIALS SCIENCE,  
JAPAN ADVANCED INSTITUTE OF  
SCIENCE AND TECHNOLOGY



Assist. Prof.  
NGUYEN TUAN HUNG  
FRONTIER RESEARCH INSTITUTE  
FOR INTERDISCIPLINARY SCIENCES,  
TOHOKU UNIVERSITY



Assoc. Prof.  
YUYA MORIMOTO  
GRADUATE SCHOOL OF INFORMATION  
SCIENCE AND TECHNOLOGY,  
THE UNIVERSITY OF TOKYO



Dr. NGUYEN THANH VINH  
SENSING SYSTEM RESEARCH CENTER,  
NATIONAL INSTITUTE OF ADVANCED  
INDUSTRIAL SCIENCE AND TECHNOLOGY

**Description:** Soft-robotic is a new branch in robotic research. It is poised to be safe and having better interaction with human. Amid the social distancing during pandemic, robots should play a large role in facilitating social services. How should we design the soft robots to better serve the society? What is the missing piece in the picture of human-robot collaboration in and post COVID-19?

**Chair:** Dr. Ta Duc Tung, The University of Tokyo, Japan



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## COVID-19 PANDEMIC AND ITS IMPACTS ON ENVIRONMENT AND GLOBAL PROGRESS TOWARDS ACHIEVING THE UN SUSTAINABLE DEVELOPMENT GOALS (SDGS)

SS6



Prof. HIROYUKI KATAYAMA

THE UNIVERSITY OF TOKYO,  
JAPAN



Dr. ERIC ZUSMAN

DIRECTOR - CENTER FOR SUSTAINABILITY  
GOVERNANCE, INSTITUTE FOR GLOBAL  
ENVIRONMENTAL STRATEGIES (IGES), JAPAN



Dr. DICKELLA GAMARALALAGE  
JAGATH PREMAKUMARA

DEPUTY DIRECTOR, IGES CENTRE COLLABORATING WITH  
UNEP ON ENVIRONMENTAL TECHNOLOGIES (CCET),  
SUSTAINABLE CONSUMPTION AND PRODUCTION, INSTITUTE  
FOR GLOBAL ENVIRONMENTAL STRATEGIES (IGES), JAPAN



Dr. NGUYEN LINH DAN

FACULTY OF ENVIRONMENTAL,  
CLIMATE CHANGE AND URBAN STUDIES,  
NATIONAL ECONOMICS UNIVERSITY (NEU), VIETNAM

**Description:** The COVID-19 pandemic is posing enormous challenges in every corner of the world, creating huge public health risks and emerging environmental challenges. As a result, it delays global progress and efforts to achieve the Sustainable Development Goals (SDGs) and related targets set under the 2030 Agenda for Sustainable Development. During this Session, an overview of the impact of the COVID-19 pandemic on global progress towards achieving the SDGs and its specific impacts on various sectors (e.g. medical waste, water and wastewater services, climate change) will be discussed and shared. In addition, this Session will initiate a discussion of a new potential framework and its application (the Triple R Framework) that will help build coherence between decisions that shape government pandemic response, recovery, and redesign.

Chair: Dr. Pham Ngoc Bao, Institute for Global Environmental Strategies  
Co-chair: Dr. Vu Duc Canh, The University of Tokyo, Japan



# VANJ CONFERENCE 2020

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## RECENT ADVANCES IN BIOMEDICINE: FROM DISEASE MECHANISMS TO THERAPEUTIC STRATEGIES

SS7.1



Dr. VONG BINH LONG

VICE DEAN,  
SCHOOL OF BIOMEDICAL ENGINEERING,  
INTERNATIONAL UNIVERSITY, VIETNAM



Assist. Prof.

YOSHITO YAMASHIRO

LIFE SCIENCE CENTER FOR SURVIVAL DYNAMICS,  
TSUKUBA ADVANCED RESEARCH ALLIANCE,  
UNIVERSITY OF TSUKUBA



Prof. NGUYEN THANH LIEM

DIRECTOR,  
VINMEC RESEARCH INSTITUTE  
OF STEM CELL AND GENE TECHNOLOGY



Dr. NGUYEN BICH TRAN

FACULTY OF MEDICINE,  
UNIVERSITY OF TSUKUBA



Dr. NGUYEN TIEN DAT

NATIONAL CENTER FOR  
GLOBAL HEALTH AND MEDICINE

**Description:** The achievement of clinical and biomedical research has guided most of our understanding in disease diagnostic and treatment. Notably, recent advances in biomedicine have contributed to the revolution of clinical landscape, including clarifying the mechanisms involved in numerous diseases, developing new therapeutics, and raising the innovative ideas for future research. With the aim to bring the expertise to discuss the researches on biomedical science and enhance the collaboration between Vietnam and Japan, this session will include recently outstanding researches in biomedicine, including the novel mechanisms of diseases, the application of stem cell for clinical treatment, and the development of nanotechnology in medicine.

**Chair:** Assist. Prof. Vuong Cat Khanh, University of Tsukuba, Japan



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## SUSTAINABLE AND EFFECTIVE PUBLIC HEALTH STRATEGIES TO COPE WITH COVID-19 IN THE NEW NORMAL

SS7.2



Dr. NORIO OHMAGARI

DIRECTOR, DISEASE CONTROL  
AND PREVENTION CENTER, NATIONAL CENTER  
OF GLOBAL HEALTH AND MEDICINE



Assoc. Prof.  
NGUYEN VIET NHUNG

DIRECTOR,  
NATIONAL LUNG HOSPITAL



Assist. Prof.

WYNN HUYNH TRAN  
CALIFORNIA NORTHSATE UNIVERSITY  
AND WYNN MEDICAL CENTER



Dr. PHAM NGUYEN QUY

FOUNDER OF YHOCCONGDONG.COM,  
KYOTO MINIREN CENTRAL HOSPITAL,  
KYOTO UNIVERSITY



Dr. TRAN NGOC DANG

VICE DIRECTOR,  
GRANT AND INNOVATION CENTER,  
UNIVERSITY OF MEDICINE AND PHARMACY  
AT HO CHI MINH CITY



Dr. MOMOE TAKEUCHI

TEAM COORDINATOR,  
UNIVERSAL HEALTH COVERAGE TEAM,  
WHO VIETNAM

**Description:** Different countries have different perspectives and approaches to tackle and prevent COVID-19. Medical and public health experts from Japan, Vietnam, USA, Australia will share their lessons and experience on COVID-19 prevention and treatment in their countries. In the discussion part, we will share opinions on how to make sustainable and effective public health strategies for COVID-19 preparedness and response in the New Normal context.

**Chair:** Assoc. Prof. Nguyen Viet Nhun, M.D., Ph.D., Director of National Lung Hospital, Vietnam

**Co-chair:** Dr. Pham Nguyen Quy, Kyoto University Hospital, Japan



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## ROLES AND APPLICATIONS OF POWER CONVERTERS, ENERGY STORAGE SYSTEMS AND EVs IN GRIDS WITH HIGH PENETRATION OF RENEWABLE ENERGY SOURCES

SS8



Assoc. Prof. DO DUC TON  
NAZARBAYEV UNIVERSITY,  
KAZAKHSTAN



Dr. TRAN HUYNH NGOC  
TOYOTA TECHNOLOGICAL INSTITUTE,  
JAPAN



Assist. Prof.  
NGUYEN GIA MINH THAO  
NAGOYA UNIVERSITY,  
JAPAN



Dr. PHAM VAN LONG

TOKYO METROPOLITAN UNIVERSITY, JAPAN  
SOONGSIL UNIVERSITY, REPUBLIC OF KOREA



Dr. NGUYEN ANH DUNG  
VIRGINIA TECH,  
USA

**Description:** Power grids with the high penetration of renewable energy sources (e.g. photovoltaic, wind, fuel-cell, etc) have been being more and more popular in recent years. In those grids, power electronics converters, energy storage systems (ESS) and electric vehicles (EVs) have been widely used and had important roles to ensure and improve effectiveness and stability of the grids. This special session is also focused on efficient control methods and mechanism for microgrids, smart grids and energy markets, which consist of renewable energy, power converters, ESS and EVs.

**Chair:** Assist. Prof. Nguyen Gia Minh Thao, Nagoya University, Japan



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## POLICIES, ECONOMIC AND BUSINESS STRATEGY

SS9



**Prof. YOSHIKI MATSUI**

FACULTY OF INTERNATIONAL SOCIAL SCIENCES,  
YOKOHAMA NATIONAL UNIVERSITY;  
FACULTY OF LIBERAL ARTS,  
THE OPEN UNIVERSITY OF JAPAN

**Assoc. Prof. TRAN THI BICH**

DEAN OF THE DEPARTMENT OF STATISTICS,  
NATIONAL ECONOMIC UNIVERSITY (VIETNAM)



**Mr. CHIKAHISA SUMI**

DIRECTOR OF REGIONAL OFFICE FOR ASIA  
AND THE PACIFIC (OAP), IMF

**Dr. LE THAI HA**

DIRECTOR OF RESEARCH AND SENIOR FACULTY MEMBER,  
FULBRIGHT SCHOOL OF PUBLIC POLICY AND MANAGEMENT,  
FULBRIGHT UNIVERSITY VIETNAM

**Description:** The COVID-19 pandemic has had significant economic repercussions on the global economy. Inviting speakers from both international organizations and academia, this session will discuss a wide range of economics and business topics including trade, supply chain management, labor market and economic policies, with a focus on the current COVID-19 situation.

**Chair:** Dr. Nguyen Thi Ngoc Anh, IMF, OAP



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# NEUTRINO

## SS11



Nobel Laureate  
Prof. TAKAAKI KAJITA  
**ICRR, IPMU, & NNSO,  
THE UNIVERSITY OF TOKYO, JAPAN**



Assoc. Prof.  
NGUYEN THI HONG VAN  
**INSTITUTE OF PHYSICS (IOP),  
VIETNAM ACADEMY OF  
SCIENCE AND TECHNOLOGY (VAST)**

**Description:** Neutrino is everywhere, about 330 neutrinos per  $\text{cm}^3$ , one of the most abundant particles in the Universe just after the photon. That neutrino mass is very small compared to other elementary particles but non-zero, indicated by the neutrino oscillation discovery, is a game-changer of modern physics since it is evidence of physics beyond the Standard Model of elementary particles. Neutrino plays a key role not only in particle physics but astrophysics and cosmology. Japan has a long tradition to study neutrino-related subjects with three Nobel prizes given. The recent result from T2K, a flagship international experiment based in Japan with ~ 500 collaborators from 12 countries including Vietnam, indicates a violation of CP invariance in the leptonic sector. That the leptonic CP violation may connect to the observed matter-antimatter asymmetry in the Universe is a very attractive scenario. Vietnam neutrino group joined T2K in 2017 and will join other neutrino research in the future. This is a great opportunity for us to contribute to this active field of research. The section is dedicated to the neutrino science with insight from Prof. Takaaki Kajita, 2015 Nobel prize laureate. We also discuss the present and prospects of neutrino research in Vietnam.

**Chair:** Dr. Cao Van Son, High Energy Accelerator Research Organization



# VANJ CONFERENCE 2020

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## DRUG DELIVERY SYSTEM

SS12



**Prof. HITOSHI KASAI**  
INSTITUTE OF MULTIDISCIPLINARY  
RESEARCH FOR ADVANCED MATERIALS,  
TOHOKU UNIVERSITY, JAPAN



**Assoc. Prof. AKIHIRO KISHIMURA**  
DEPARTMENT OF APPLIED CHEMISTRY,  
FACULTY OF ENGINEERING,  
KYUSHU UNIVERSITY, JAPAN



**Assist. Prof. HIROYASU TAKEMOTO**  
RESEARCH INSTITUTE OF  
SCIENCE AND TECHNOLOGY,  
TOKYO INSTITUTE OF TECHNOLOGY, JAPAN



**Assist. Prof. ANH T.N. DAO**  
INSTITUTE OF MULTIDISCIPLINARY  
RESEARCH FOR ADVANCED MATERIALS,  
TOHOKU UNIVERSITY, JAPAN

**Description:** Cancer has caused a major death toll for many years and many more to come. Its enduring treatments yet considerably incurable heavily affect people work and life. Improvement in the efficacy of treatment including the reduction of treatment time through effective measures, reducing side effects to help patients cope with the treatment and manage to function at a similar level to normal life is greatly needed. To this end, the drug delivery system (DDS) stands out for its significant contribution in improving the efficacy of chemotherapy, radiation therapy, immunotherapy, and so on. In this special session, the strategic designs and potentials for DDS will be introduced, projected from various angles of materials chemistry, including organic, inorganic, natural and synthetic polymer, etc. The session chair also welcomes submissions from excellent students for the Excellent Young Researchers and Poster Awards.

**Chair:** Assist. Prof. Anh T.N. Dao, Tohoku University, Japan

## Session 1: Emerging Nanomaterials (November 28, 2020)

Keynote Speaker: 25min (Presentation) + 5min (Discussion)

Invited Speaker: 15min (Presentation) + 5min (Discussion)

General Speaker: 10min (Presentation) + 5min (Discussion)

**Chair:** Assist. Prof. Nguyen Tuan Hung, Tohoku University

**Co-Chair:** Assist. Prof. Le Duc Anh, The University of Tokyo

### Keynote Speaker (9:30 - 10:00)

9:30-10:00	New ferromagnetic semiconductors and spintronics applications Masaaki Tanaka*, Le Duc Anh, Kosuke Takiguchi, Shobhit Goel, Shinobu Ohya, Nguyen Thanh Tu, and Pham Nam Hai	S1-1
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### Invited Speaker (10:00 - 11:40)

10:00-10:20	Topological insulator spintronics Pham Nam Hai*, Nguyen Huynh Duy Khang, Tuo Fan, Yugo Ueda, Yasuyoshi Miyamoto	S1-2
10:20-10:40	Conversion of a conventional superconductor into a topological superconductor by topological proximity effect Xuan Chi Trang*	S1-3
10:40-11:00	Long-range magnetic ordering in V-doped WSe <sub>2</sub> semiconductors Duong Dinh Loc*	S1-4
11:00-11:20	Tunneling spectroscopy of oxide heterostructures Hisashi Inoue*, Adrian G. Swartz, Nicholas J. Harmon, Tyler A. Merz, Takashi Tachikawa, Yasuyuki Hikita, Srinivas Raghu, Thomas P. Devereaux, Michael E. Flatté, Steven Johnston, and Harold Y. Hwang	S1-5
11:20-11:40	Unusual properties of compositionally graded ferroelectrics: Insights from phase field simulations Le Van Lich*	S1-6

### Break (11:40-11:50)

### General Speaker

11:50-12:05	Novel hierarchical copper-based metal-organic frameworks for improved catalytic performance Doan Huan*	S1-7
12:05-12:20	In situ crack healing in self-repair ceramics by dual laser beams and digital image processing Nguyen Thanh Son*, Tran Thi Minh Hanh, Tao Bang Quang, Nguyen Tan Hung, Do Phu Huy	S1-8
12:20-12:35	Solvent screening for effective liquid-phase exfoliation of graphite Nu Thanh Ton Nhan*, Ha Minh-Quyet, Ashutosh Thakur, Takuma Ikenaga, Dam Chi Hieu, Toshiaki Taniike	S1-9

## Session 2: MEMS and IoT (November 28, 2020)

Keynote Speaker: 25min (Presentation) + 5min (Discussion)

Invited Speaker: 15min (Presentation) + 5min (Discussion)

**Chair:** Dr. Nguyen Thanh Vinh, Researcher at National Institute of Advanced Industrial Science and Technology (AIST)

**Co-chair:** Dr. Yuki Okamoto, Researcher at National Institute of Advanced Industrial Science and Technology (AIST)

### Keynote Speaker (13:30 - 14:00)

13:30-14:00	Innovative research through CMOS-MEMS open platform with young generation Yoshio Mita*	S2-1
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### Invited Speaker (14:00 - 17:40)

14:00-14:20	Active muscle sensing system Yusuke Takei*	S2-2
14:20-14:40	Silicon carbide MEMS thermal sensors and actuators Toan Dinh*, Thanh Nguyen, Pablo Guzman, Hoang-Phuong Phan, Tuan-Khoa Nguyen, Abu Md Foisal, Nam-Trung Nguyen, Dzung Viet Dao	S2-3
14:40-15:00	CMOS-MEMS based electroosmotmotic micropump integrated with a driving high-voltage generator Yuki Okamoto*, Yoshio Mita	S2-4
15:00-15:30	<b>Break</b>	
15:30-15:50	Silicon MEMS sensors employing electrical detection of plasmon Tetsuo Kan*	S2-5
15:50-16:10	A simulation study of a new structure of higher performance of a silicon piezoresistive MEMS strain gauge Nguyen Chi Cuong*, Lam Minh Thinh, Trinh Xuan Thang, Le Quoc Cuong, Ngo Vo Ke Thanh, and Susumu Sugiyama	S2-6
16:10-16:30	MEMS vibrational energy harvester for IoT Hiroaki Honma* and Hiroshi Toshiyoshi	S2-7
16:30-16:50	Ultra-low power wireless communication technology for wireless sensor networks Hironao Okada*	S2-8
16:50-17:10	MEMS sensors for vital sign monitoring Thanh-Vinh Nguyen*	S2-9

## Session 3: VLSI and Applications (November 28, 2020)

Keynote Speaker: 17min (Presentation) + 3min (Discussion)

Invited Speaker: 13min (Presentation) + 2min (Discussion)

General Speaker: 9min (Presentation) + 1min (Discussion)

**Chair:** Assist. Prof. Nguyen Ngoc Mai Khanh, The University of Tokyo

**Co-chair:** Dr. Pham Van Long, Tokyo Metropolitan University

### Keynote Speaker (9:30 - 9:50)

Development Of Infection Diseases Screening System By Collaboration Between Vietnam And Japan

9:30-9:50	Koichiro Ishibashi*, Guanghao Sun, Nguyen Vu Trung, Le Thi Hoi, Nugyen Van Kinh, Do Trong Tuan, Han Trong Thanh, Nguyen Linh Trung, Luu Manh Ha, Pham Thanh Hiep, and Takemi Matsui	S3-1
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### Invited Speaker (9:50 - 11:30)

9:50-10:05	Integrated Antennas For Mm-Wave Applications Nguyen Ngoc Mai-Khanh*	S3-2
	Fully-Depleted SOI Technology For 5G and Mmw RF Front-Ends	
10:05-10:20	T. V. Dinh*, B. W. C. Hovens, M. Vroubel, S. Dal Toso, M. Cannella, and C. Ghidini	S3-3
	Sampling-Free Bayesian Neural Networks on FPGA	
10:20-10:35	Hiromitsu Awano*	S3-4
	Secure Internet Of Things With Machine Learning Assisted Hardware Security Solutions	
10:35-10:50	Hoang Van Phuc*	S3-5

### General Speaker

10:50-11:00	Trusted Execution Environment (TEE) on Open-Source Risc-V Processor System Trong-Thuc Hoang*, Ckristian Duran, Akira Tsukamoto, Kuniyasu Suzuki, and Cong-Kha Pham	S3-6
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### Panel Discussion

11:00-11:30 “Semiconductor in Vietnam: What is the right direction?”

#### Panelists:

1. Dao-Ngoc Chien, Ministry of Science and Technology, High Technology Department, Vietnam
2. Koichiro Ishibashi, The University of Electro-Communications (UEC), Japan
3. Bich-Yen Nguyen, Senior Fellow, Soitec, France
4. Tran Xuan Tu, Vietnam National University-University of Engineering and Technology, Vietnam
5. Hoang Van Phuc, Le Quy Don Technical University, Vietnam.

**Moderator:** Nguyen Ngoc Mai-Khanh, System Design Center (d.lab), The University of Tokyo, Japan

## Session 4: Deep learning in NLP (November 29, 2020)

Invited Speaker: 15min (Presentation) + 5min (Discussion)

General Speaker: 10min (Presentation) + 5min (Discussion)

Chair: Dr. Hoang-Quoc Nguyen-Son, KDDI Research Inc., Japan

### Invited Speaker (15:30 – 17:00)

15:30-15:50	Neural approaches for legal text analyzing and applications Nguyen Le Minh*	S4-1
	Vietnamese machine reading comprehension	
15:50-16:10	Kiet Van Nguyen, Duc-Vu Nguyen, Anh Gia-Tuan Nguyen, Ngan Luu-Thuy Nguyen*	S4-2
	Machine-generated text detection by estimating the similarity with its extra generation	
16:10-16:30	Nguyen Son Hoang Quoc*, Tran Phuong Thao, Seira Hidano, and Shinsaku Kiyomoto	S4-3
	Applications of active and proactive learning	
16:30-16:50	Minh-Quoc Nghiem*, Sophia Ananiadou	S4-4

### General Speaker

16:50-17:05	Towards efficient and expressive knowledge graph embedding for link prediction Hung Nghiep Tran, Atsuhiro Takasu	S4-5
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## Session 5: Soft Robotics (15:30 – 17:45 November 29, 2020)

Invited Speaker: 15min (Presentation) + 5min (Q&A)

**Chair:** Dr. Ta Duc Tung, The University of Tokyo

### Invited Speaker (15:30 - 17:30)

15:30-15:50	Biomimetic Study of Swimming Penguins Hiroto Tanaka* – Tokyo Institute of Technology	S5-1
15:50-16:10	Biomimetic Surfaces For Soft Robots Thanh-Vinh Nguyen* - AIST	S5-2
16:10-16:30	Reconstructing Manufacturing, Design, and Control Methodologies For Fabricating Soft-Bodied Robots Takuya Umedachi* – Shinshu University, Tung D. Ta – The University of Tokyo	S5-3
16:30-16:50	Biohybrid Robot Composed of Cultured Tissue and Artificial Device Yuya Morimoto* – The University of Tokyo, Shoji Takeuchi – The University of Tokyo	S5-4
16:50-17:10	Artificial Muscles For Soft Robots Nguyen Tuan Hung* – Tohoku University, Vuong Van Thanh – Hanoi University of Science and Technology	S5-5
17:10-17:30	Soft Robotics: Potential Contributions in Science and Technology Pho Van Nguyen* – JAIST, Van Ho – JAIST	S5-6

### Panel Discussion (17:30 – 17:45)

17:30-17:45 Soft Robotics in the new normal

## **Session 6: COVID-19 Pandemic and Its Impacts on Environment and Global Progress Towards Achieving the UN Sustainable Development Goals (November 28, 2020)**

Keynote Speaker: 20min (Presentation) + 5min (Discussion)

Invited Speaker: 15min (Presentation) + 5min (Discussion)

**Chair:** Dr. Pham Ngoc Bao, Institute for Global Environmental Strategies

**Co-chair:** Dr. Vu Duc Canh, The University of Tokyo

### **Keynote Speaker (11:00 - 11:50)**

11:00-11:25 A Sustainable COVID-19 Response, Recovery, and Redesign: The Triple R Framework and the SDGs in Asia S6-1

Eric ZUSMAN\*

11:25-11:50 Wastewater Epidemiology for Novel Coronavirus S6-2

Hiroyuki Katayama\*, Shotaro Torii, Hiroaki Furumai

### **Invited Speaker (11:50 - 12:30)**

11:50-12:10 Covid-19 Pandemic and Its Impacts Towards Achieving Chemical and Waste Management S6-3

Premakumara Jagath\*, Dickella Gamaralalage, Rajeev Kumar Singh

12:10-12:30 Covid-19 Pandemic and its Impacts on Environment and Global Progress towards Achieving the UN Sustainable Development Goals (SDGs) in Viet Nam S6-4

Nguyen Linh Dan\*, Tran Tho Dat

## Session 7-1: Recent advances in Biomedicine (November 29, 2020)

Keynote Speaker: 20min (Presentation) + 10min (Discussion)

Invited Speaker: 15min (Presentation) + 7min (Discussion)

General Speaker: 10min (Presentation) + 5min (Discussion)

**Chair:** Assist. Prof. Vuong Cat Khanh, University of Tsukuba

### Keynote Speaker (13:30 - 14:00)

Stem cell transplantation for incurable diseases in children

- 13:30-14:00 Nguyen Thanh Liem\*, PhD, MD - Vinmec Research Institute of Stem cell and Gene Technology, Vietnam S7-1-1

### Invited Speakers (14:00 - 15:28)

Matrix Mechanotransduction in Remodeling of Vessel Wall

- 14:00-14:22 Yoshito Yamashiro\*, PhD - Tsukuba Advanced Research Alliance, University of Tsukuba, Japan S7-1-2

A novel mechanisms of lung fibrosis mediated by an amino acid transporter

- 14:22-14:44 Nguyen Tien Dat\*, PhD - Department of Molecular Immunology and Inflammation, National Center for Global Health and Medicine, Japan S7-1-3

Nanotechnology in Medicine: Prospectives and Challenges

- 14:44-15:06 Vong Binh Long\*, PhD – School of Biomedical Engineering, International University, Vietnam S7-1-4

Targeting T-Cell Receptor Signaling as Angioimmunoblastic T-Cell Lymphoma Treatment

- 15:06-15:28 Nguyen Bich Tran\*, PhD, MD – Department of Hematology, University of Tsukuba, Japan S7-1-5

### General Speakers (15:28 - 15:43)

Synergistic antibiofilm effect of biosurfactant and SDS using microfluidic devices

- 15:28-15:43 Nguyen Vu Giang Bac\*, PhD - Graduate School of Life and Environmental Science, University of Tsukuba, Japan S7-1-6

## Session 7-2: Public Health: Sustainable and effective strategies to cope with COVID-19 in the New Normal (November 28, 2020)

**Chair:** Assoc.Prof. Nguyen Viet Nhung, Director of National Lung Hospital, Vietnam  
**Co-Chair:** Dr. Pham Nguyen Quy M.D., Ph.D., Kyoto Miniren Hospital, Japan

13:30-13:35	Welcome and introduction Dr. Pham Nguyen Quy*, M.D., Ph.D., Kyoto Miniren Hospital	
13:35-14:05	Response to COVID-19 in Japan 20 mins presentation + 10 mins Q&A Dr. Norio Ohmagari*, M.D., Ph.D., Director of Disease Control and Prevention Center, National Center for Global Health and Medicine, Japan	S7-2-1
14:05-14:35	Safe hospital for Covid 19 responses in Vietnam 20 mins presentation + 10 mins Q&A Assoc.Prof. Nguyen Viet Nhung*, M.D., Ph.D., Director of National Lung Hospital, Vietnam	S7-2-2
14:35-14:55	Challenges to an optimal responses of the United States in COVID-19; A Review 15 mins presentation + 5 mins Q&A Assist.Prof. Huynh Wynn Tran*, M.D, PhD., California Northstate University and Wynn Medical Center	S7-2-3
14:55-15:15	Advancing Universal Health Coverage (UHC) in the time of COVID-19 in Viet Nam 15 mins presentation + 5 mins Q&A Dr. Momoe Takeuchi*, Ph.D., Team Coordinator, Universal Health Coverage Team, WHO Viet Nam	S7-2-4
15:15-15:35	The association between air pollution and COVID-19: the good and the bad 15 mins presentation + 5 mins Q&A Dr. Tran Ngoc Dang*, Ph.D., Vice Director, Grant and Innovation Center, University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam	S7-2-5
15:35-15:55	Open discussion: how to make a sustainable and effective strategies to cope with COVID-19 in the New Normal	
15:55-16:00	Conclusion	

## **Session 8: Roles and Applications of Power Converters, Energy Storage Systems and EVs in Grids with High Penetration of Renewable Energy Sources (November 28, 2020)**

Invited Speaker: 15min (Presentation) + 5min (Discussion)  
General Speaker: 10min (Presentation) + 5min (Discussion)

**Chair:** Assist. Prof. Nguyen Gia Minh Thao, Nagoya University

### **Invited Speakers (10:00 - 11:40)**

15:30-15:50	Impact of Renewable Energy on Power System Tran Huynh Ngoc *	S8-1
15:50-16:10	Some Control Issues and Control System Design for Wind Energy Conversion Systems Do Duc Ton *	S8-2
16:10-16:30	Power Converters Enable Electric Vehicle-Grid Integration Nguyen Anh Dung *, and Nguyen Le Huy Bang	S8-3
16:30-16:50	Improving Performance and Lifetime of Energy Storage Systems by using Battery Cell-Balancing Circuits Pham Van Long *, and Nguyen Gia Minh Thao	S8-4

### **General Speaker**

16:50-17:05	Power Electronics Applications for Full-Scale Converter Wind Turbine Systems Nguyen Anh Tan *	S8-5
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## Session 9: Policies, Economic and Business Strategy

(15:30 – 17:00 November 28, 2020)

Invited Speaker: 15min (Presentation) + 5min (Discussion)  
General Speaker: 10min (Presentation) + 5min (Discussion)

**Chair:** Dr. Nguyen Thi Ngoc Anh, IMF, OAP

### Invited Speaker

15:30-15:50	WORLD ECONOMIC OUTLOOK – A LONG AND DIFFICULT ASCENT Chikahisa Sumi	S9-1
15:50-16:10	EVALUATION OF TEST-KIT TRADE AND TRADE POLICY IN RESPONSE TO THE COVID-19 PANDEMIC Le Thai Ha	S9-2
16:10-16:30	LESSONS FROM AN MBA PROGRAM IN HANOI Yoshiki Matsui	S9-3
16:30-16:50	THE IMPLEMENTATION AND NECESSARY IMPROVEMENTS OF THE VIETNAMESE GOVERNMENTAL POLICY PACKAGES TOWARDS ENTERPRISES FROM A FIRM PERSPECTIVE Tran Thi Bich	S9-4

### General Speaker

16:50-17:05	VIETNAM's ASCENDANCY IN THE ELECTRONICS TRADE AND THE ROLE OF INWARD FDI Craig Parsons and Vu Hong Ha	S9-5
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## Session 11: Neutrino (November 29, 2020)

Plenary Speaker: 45min (Presentation) + 15min (Discussion)  
Invited/General Speaker: 12min (Presentation) + 3min (Discussion)

**Chair:** Dr. Cao Van Son, High Energy Accelerator Research Organization

### Plenary Speaker (10:30 - 11:30)

- 10:30-11:30 UNVEILING THE SECRET OF THE UNIVERSE WITH NEUTRINOS S11-1  
Takaaki Kajita, ICRR, The University of Tokyo, Japan

### Invited/General Speaker (11:30 - 12:00)

- 11:30-11:45 Matter-antimatter asymmetry of the Universe in the light of the T2K experiment S11-2  
Nguyen T. H. Van, IOP, VAST, Vietnam
- 11:45-12:00 Photon counting method to improve energy resolution in CANDLES experiment S12-3  
Bui T. Khai, Osaka University, Japan.

## Session 12: Drug Delivery System (November 28, 2020)

Keynote Speaker: 25min (Presentation) + 5min (Discussion)  
Invited Speaker: 15min (Presentation) + 5min (Discussion)

**Chair:** Assist. Prof. Anh T.N. Dao, Tohoku University

### Keynote Speaker (13:30 - 14:00)

13:30-14:00 Novel designed nano-prodrugs composed of poorly water-soluble compounds S12-1  
Hitoshi Kasai\*

### Invited Speaker (14:00 - 15:00)

14:00-14:20 Development of novel polyioncomplex systems for protein delivery and encapsulation S12-2

Akihiro Kishimura\*

14:20-14:40 Polyzwitterion that recognizes tumorous pH for effective tumor delivery of the coated materials S12-3

Hiroyasu Takemoto\*

14:40-15:00 Fabrication of silk protein to hybrid nanocarriers for cancer therapy S12-4

Anh T.N. Dao\*, H. Kasai

## Session: Excellent Young Researchers (November 29)

8min (Presentation) + 2min (Discussion)

### Time (9:00 - 11:00)

9:00-9:10	Repeated pressurization as a unique deterioration mechanism of reverse osmosis membrane used in households in Hanoi, Vietnam Shotaro Torii*, Takashi Hashimoto, Thuan An Do, Hiroaki Furumai and Hiroyuki Katayama	EYR-1
9:10-9:20	Growth and astaxanthin production of chlorella zofingiensis with different energy sources Anh Tran Thi Nhat* and Nagare Hideaki	EYR-2
9:20-9:30	Forecasting of the Waste-TVs Generation and its Future Trends in Vietnam Thao Q. Tran*	EYR-3
9:30-9:40	Monitoring of 30 Years National Dynamics of Vietnam's Seagrass Ecosystem by Cloud Computing Xuan Truong Trinh*	EYR-4
9:40-9:50	Dairy farming system in adaptation to climate change Phong Vuong Tuan* and Long Su Thanh	EYR-5
9:50-10:00	Power electronics applications for full-scale converter wind turbine systems Anh Tan Nguyen*	EYR-6
10:00-10:10	Mechanical properties and mechanotransduction of primary cilia under tensile test Tien-Dung Do* and Toshiro Ohashi	EYR-7
10:10-10:20	Control of lipid oxidation in cobia muscle during refrigerated storage by guava leaf extract Duy Nguyen Xuan*, Tuan Nguyen Anh and Hanh Tran Thi My	EYR-8
10:20-10:30	Hedging with Commodity Futures: Evidence from Coffee in Vietnam Ngân N. Nguyễn*, Hồng T. Trần and Cường Đ. Nguyễn	EYR-9
10:30-10:40	Hit Song Prediction based on Gradient Boosting Decision Tree Bang-Dang Pham*, C-Minh Triet Tran and Hoang Long C-Pham	EYR-10
10:40-10:50	Deceive Intrusion Detection System with GAN and Function-Preserving on Adversarial Samples in SDN-enabled networks The Duy Phan*, Khac Tien Le, Hien Do Thi Thu, Qui Cao Phan Xuan, Quang Dang Hong and Van-Hau Pham	EYR-11
10:50-11:00	Corn starch-NaHSO3 (CoNa) based solid polymer electrolytes and its applications. Fatin Farhana Awang*, Mohd Faiz Hassan and Khadijah Hilmun Kamarudin	EYR-12

## Session: Poster (November 28)

### Time (11:00 - 12:30)

Potentiation effects of Ficus sycomorus active fraction against Deltamethrin-resistant Anopheles coluzzii (Diptera: Culicidae) from Kano-Nigeria P-1

Abba Babandi\*, Chioma A Anosike and Lawrence Lus Ezeanyika

Population Pharmacokinetics of intravenous Ganciclovir and oral Valganciclovir in pediatric population to optimize dosing regimens P-2

Bach Nguyen\* and Deborah Hirt

Analysis expected impacts of free trade agreements (ftas) on vietnam's agro-industrial export: application of gravity model P-3

Thi Minh Chi Nguyen\* and Nadine Tournois

Influence of Supporting Substrates to the Adsorption Mechanism of Toxic Gases on Graphene Surface: First Principle Investigation P-4

Bac Phung\*

Nutritional and functional properties of protein hydrolysates from sailfish trimmings P-5

Thi My Huong Nguyen\*

Chemical proximate composition of wild salmon eggs (*Oncorhynchus gorbuscha*) harvested in Pacific ocean region P-6

Duy Nguyen Xuan, Tuan Nguyen Anh and Hanh Tran Thi My\*

Extraction of bio-antibacterial compounds from coconut skins and application in control of disease on plants P-7

Duy Nguyen Xuan\* and Khoi Nguyen Le Ngoc