

2021 Taiwan - Vietnam "Production Automation and Smart Manufacturing" Conference (PASM 2021) (Webinar)

2021 臺越雙邊生產自動化及智慧製造研討會



15th Dec. 2021

National Chung Hsing University, Taiwan

National Center for Technological Progress, Vietnam

Webinar (Google Meet) : <https://meet.google.com/rwf-edjt-zvf>

PROGRAM

December 15, 2021

**Avenue: Face-to-face and online conference
on the Google Meeting platform**

Time (Taiwan)	Time (Vietnam)	Representative /Speakers	Contents
OPENING SESSION			
<i>Moderator: Assoc.Prof. Anh-Tuan Do and Prof. Gou-Jen Wang</i>			
<i>Taiwan Time: 09:30 – 09:50; Vietnam Time: 08:30 – 08:50 am;</i>			
9:30 - 9:40 (10')	8:30 - 8:40 (10')	Dr. Chih-Peng Li, Director General, Department of Engineering and Technologies, Ministry of Science and Technology (MOST), Taiwan.	Welcome speech
9:40 - 9:50 (10')	8:40 - 8:50 (10')	Dr. Hung-Thuan Tran, Vice President of National Center for Technological Progress, Ministry of Science and Technology (MOST), Vietnam.	Congratulatory Remarks
TOPICS			
<i>Moderator: Assoc.Prof. Anh-Tuan Do and Prof. Gou-Jen Wang</i>			
<i>Taiwan Time: 09:50 – 11:30 am; Vietnam Time: 08:50 – 10:30 am;</i>			
9:50 - 10:10 (20')	8:50 - 9:10 (20')	Prof. Chung-Hsien Kuo, Dept. of Mechanical Engineering, National Taiwan University	Topic: Taiwan's Robotic Research Directions and Case Reports, from Taiwan

10:10 - 10:30 (20')	9:10 - 9:30 (20')	Mr. Ngoc-Hoang Vuong, CEO of ESTEC	Topic: Digital transformation – toward to smart factory, from Vietnam
10:30 - 10:50 (20')	9:30 - 9:50 (20')	Richard Chuang, Manager, TURING DRIVE Inc.	Topic: Electric Vehicles (EV), Autonomous driving, and Low-Speed Vehicle (LSV) safety solutions., from Taiwan
10:50 - 11:10 (20')	9:50 - 10:10 (20')	Assoc. Prof. Van-Sang Pham, Hanoi University of Science and Technology.	Topic: Smart manufacturing, from Vietnam
11:10 - 11:30 (20')	10:10 -10:30 (20')	Mr. Michael Huang, CEO of V5 Technologies	Topic: The Evolution of Optical Inspection and Measurement Equipment Technology of the Advanced Packaging Process (Bumping) in Semiconductor Manufacturing, from Taiwan
<p>DISCUSSION ON ALL TOPICS</p> <p><i>Moderator: Assoc.Prof. Anh-Tuan Do and Prof. Gou-Jen Wang</i></p> <p><i>Taiwan Time: 11:30 – 11:50 pm; Vietnam Time: 10:30 – 10:50 am;</i></p>			
11:30 - 11:50 (20')	10:30 -10:50 (20')	All participants	All topics (Q/A)
<p>INDUSTRY FORUM</p> <p><i>Moderator: Assoc.Prof. Anh-Tuan Do and Prof. Gou-Jen Wang</i></p> <p><i>Taiwan Time: 11:50 – 12:35 pm; Vietnam Time: 10:50 – 11:35 pm;</i></p>			
11:50 - 12:05 (15')	10:50 -11:05 (15')	Dr. Chiu-Feng Lin, CEO, Metal Industries Research & Development Centre	Topic: PASM industry in Taiwan

12:05 - 12:20 (15')	11:05 -11:20 (15')	Dr. Minh-Dinh Bui, Hanoi University of Science and Technology	Topic: Smart manufacturing 5G RRU filter and antenna component
12:20 - 12:35 (15')	11:20 -11:35 (15')	Mr. Yung-Hsiang Lai, President, Precision Machinery Research & Development Centre	Topic: Taiwan Smart Machinery and Manufacturing - Current Situation and Future Prospect.
<p>INDUSTRY FORUM DISCUSSIONS</p> <p><i>Moderator: Assoc.Prof. Anh-Tuan Do and Prof. Gou-Jen Wang</i></p> <p><i>Taiwan Time: 12:35 – 13:00 am; Vietnam Time: 11:35 – 12:00 am;</i></p>			
12:35 - 12:55 (20')	11:35 -11:55 (20')	All participants	Topic: PASM industry in Taiwan and Vietnam (Q/A)
12:55 - 13:00 (5')	11:55 -12:00 (5')	Representative of Taiwan	Statement for closing Conference

(Presentation in English)



Welcome speech

Dr. Chih-Peng Li, Director General, Department of Engineering and Technologies (MOST) 科技部工程技術研究發展司 李志鵬司長

Education : **Ph.D.**, School of Electrical Engineering, Cornell University, Ithaca, NY, USA. Advisor: Prof. Zygmunt Haas.

Dr. Li is currently the Chapter Chair of IEEE Broadcasting Technology Society Tainan Section. Dr. Li has also served as the Chapter Chair of IEEE Communication Society Tainan Section, the President of Taiwan Institute of Electrical and Electronics Engineering, the Editor of IEEE Transactions on Wireless Communications, the Associate Editor of IEEE Transactions on Broadcasting, the General Chair of 2020 Taiwan Telecommunications Annual Symposium, the General Co-Chair of 2017 IEEE Information Theory Workshop, the General Chair of 2014 IEEE 11th VTS Asia Pacific Wireless Communications Symposium, and the Member of Board of Governors with IEEE Tainan Section.



Congratulatory Remarks

Dr. Hung-Thuan Tran, Vice President of National Center for Technological Progress (NACENTECH), Ministry of Science and Technology (MOST), Vietnam.

Education : **Ph.D.**, Environmental Engineering and Biotechnology, Myongji University, Korea

Dr. Tran is now also Director of Center for Advanced Materials Technology (belonged to NACENTECH). With extensive experience in demand-driven R&D activities to develop cutting-edge technologies in the area of green technologies and S&T management, he is currently responsible for international cooperation in R&D and S&T policy in NACENTECH. On the academic side of the curriculum, he has played as both PI and key

members in more than 10 R&D projects granted by government fund and played a significant role in several research contracts with small and medium-sized enterprises since 2009. He has been registered as member of national S&T reviewer since 2015, has been proposal evaluation committee member for more than 20 R&D projects and as ad hoc journal reviewer for 6 ISI journals.



Moderator

Gou-Jen Wang, Dept. of Mechanical Engineering, National Chung Hsing University 國立中興大學機械工程學系 王國禎特聘教授

Education : Ph.D., Mechanical Engineering, UCLA

Research Interests

- Biomedical Micro/Nano Devices
 - Nano System
 - Dye Sensitized Solar Cell
 - Electromechanical System
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Moderator

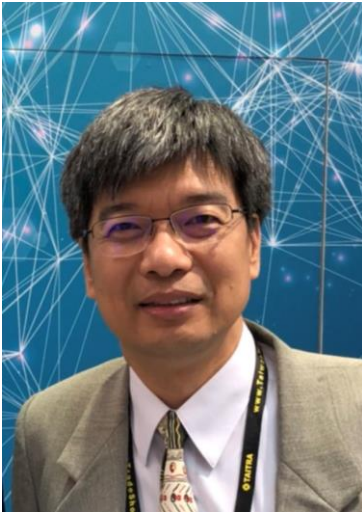
Assoc. Prof. Anh-Tuan Do, National Center for Laser Technology,
National Center for Technological Progress

Education : Ph.D., Electronic-Electrical Material and High Voltage Plasma, Dongguk University, Korea

Research Interests

- Electronic-Electrical Materials
- High Voltage Plasma
- Electric Power System
- Energy Management

Topic : Robotics



Presentation title:Taiwan's Robotic Research Directions and Case Reports

台灣機器人研究方向及成果分享

Speaker's name and affiliation:

Prof. Chung-Hsien Kuo, Dept. of Mechanical Engineering, National Taiwan University

國立臺灣大學機械工程學系 郭重顯教授

Brief Biography of Speaker:

- Dr. Kuo has been a faculty member for over 20 years. Dr. Kuo was with the faculties of the Department of Mechanical Engineering of Tungnan Junior College, Department of Mechanical Engineering of Chang Gung University, Department of Electrical Engineering of National Taiwan University of Science and Technology (NTUS). Since August 2021, Dr. Kuo has been with the National Taiwan University (NTU), where he is currently a Professor in the Department of Mechanical Engineering
- Dr. Kuo is active in the academic societies. Dr. Kuo served as the Vice Director of IEEE SMC Society Technical Committee on Medical Mechatronics since 2006; the board members of Chinese Institute of Automation Engineers (CIAE) since 2016; Chinese Automatic Control Society (CACCS) since 2017; Robotics Society of Taiwan (RST) since 2009; Taiwan Association of System Sciences and Engineering (TASSE) since 2021. Dr. Kuo is now the President of Robotics Society of Taiwan.

Abstract:

- In this talk, I am going to talk about the robotic research directions in Taiwan's universities. The robotic research directions are abstracted from the control engineering program white paper of the ministry of science and technology (MOST), Taiwan published in 2021, including robot sensing and human-robot interaction, design and control of special structure robots, intelligent cloud robotics, and control approaches and applications on industrial robots, service robots, medical robots and welfare robots. Moreover, a number of robot projects related to the abovementioned topics are reported in this talk to show the achievement of academic prototyping.

Topic : Digital transformation



Presentation title: Digital transformation – toward to smart factory, from Vietnam

Speaker's name and affiliation:

Mr. Ngoc-Hoang Vuong,

President and Director of ESTEC (East Sea Technology Engineering Electrical Automation Company).

Head office: 61 Le Duc Tho street, Ward 7, Go Vap Dist., Ho Chi Minh City, Vietnam

Brief Biography of Speaker

- Mr. Vuong Ngoc Hoang has 20-year experiences in domains of Automation solutions for industries.
- ESTEC is the top solution provider in automation, digitalization for industries in Vietnam. We provide a complete solution from design, engineering to software programming, system integration, equipment supply, installation, testing, commissioning, training and technology handover. ESTEC is proud to win trust of customers, thanks to its capability of project execution, technology know-how, quality insurance, innovative solutions and professional services. Power of engineering and project successes are the foundation for our development.
- Website: www.estec.vn

Abstract:

- Digital transformation helps to accelerate aspects of business and entire industries: an increasing adoption and usage of technologies, a need to be more resilient and agile in terms of adaptability, remote capabilities, and proactive actions. Remote maintenance and management systems to help operations recover and optimize – as they are challenged to realize significant operating cost savings, and approaches to reduce interruption unplanned. The shift to e-learning, virtual training enabled us to create the training and educational resources businesses needed to guide their operations and develop engineer workforce skills. It is vital to connect devices to the cloud to ensure you have a recurrent flow of raw data that will then enable you to serve customers with asset management, predictive maintenance, advanced analytics, ... In conclusion, the COVID-19 pandemic showed how much the Digital Transformation is important for Industries. ESTEC can help to build a stable and secure digital infrastructure, integrated systems, data to support an increasing demand for automation, dashboards, and intelligence, enabling enterprises to act fast and ideally prevent instead of reacting, create safer and more engaging spaces, and give people the best chance to succeed.

Topic : Electric car (Self-driving car)



Presentation title: Electric Vehicles (EV), Autonomous driving, and Low-Speed Vehicle (LSV) safety solutions

電動汽車 (EV)、自動駕駛和低速車輛安全解決方案

Speaker's name and affiliation:

Richard Chuang, Manager, TURING DRIVE Inc.

台灣智慧駕駛股份有限公司 莊育俊經理

Brief Biography of Speaker:

- Global Business Development Manager at Turing Drive, a leading developer of safety-oriented autonomous driving solutions. Manages new projects, customer successes, and technical support

Abstract:

- Turing Drive is a Taiwan-based company began in 2018 that develops autonomous driving system solutions for Low-Speed Vehicles (LSV), including hardware, software, operational and control center and APIs. We have also successfully integrated our solutions into buses, golf carts, and have accumulated over 30,000 km travel distances and carried more than 70,000 passengers under various conditions and settings, from amusement parks, train depot, to off-peak bus lanes, and we plan to go even further.

Topic : Smart manufacturing



Presentation title: Smart Manufacturing in Vietnam - from the university education point of view

Speaker's name and affiliation:

Assoc. Prof. Van-Sang Pham,
Vice Dean, School of Mechanical
Engineering, Hanoi University of Science
and Technology

Brief Biography of Speaker

- Dr. Van-Sang Pham took his Aerospace Engineer degree at Hanoi University of Technology in 2005. He obtained a Ph.D. degree in Computational Engineering in 2012 at the Singapore-MIT Alliance (NUS, Singapore). Dr. Pham did his postdoctoral research in the Research Laboratory of Electronics of the Massachusetts Institute of Technology (USA, 2012-2014). In 2015, Dr. Pham re-joined Hanoi University of Science and Technology (HUST, Vietnam). Dr. Pham's research activities are in the fields of Numerical Methods, Computational Engineering, Microfluidics, Desalination Technologies, and Numerical Optimization Methods for Mechanical Design.

Topic : Semiconductor manufacturing equipment



Presentation title:The Evolution of Optical Inspection and Measurement Equipment Technology of the Advanced Packaging Process (Bumping) in Semiconductor Manufacturing
半導體凸塊封裝製程的光學檢驗與量測設備技術演進

Speaker's name and affiliation:

Michael Huang, CEO, V5 Technologies

倍利科技股份有限公司 黃建中總經理

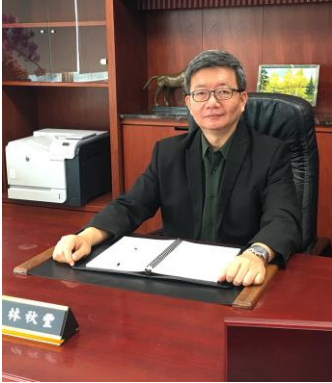
Brief Biography of Speaker:

- Dr. Michael Huang is President of V5 technologies, Ltd.
- Before joining V5 technologies in 2014, Dr. Huang had served for 7 years as Senior Director of Corporate Development Division at Neosolarpower Ltd.
- Prior to that, he served as a department manager at Taiwan Semiconductor Manufacturing Company (TSMC).
- Dr. Huang received his B.S., M.S., and Ph.D. in industrial engineering from National Chiao Tung University, Taiwan.

Abstract:

- Briefing to Semiconductor MFG Supply Chain and Key Players
- Introduction to Advanced Package Process: Bumping
- Inspection and Measurement Requirements in Bumping Process
- The Evolution of Optical Inspection and Measurement Equipment Technology of Bumping Process
- Conclusion

Topic : PASM industry in Taiwan



Presentation title: PASM industry in Taiwan

Speaker's name and affiliation:

Dr. Chiu-Feng Lin, CEO, Metal Industries Research & Development Centre

財團法人金屬工業研究發展中心 林秋豐執行長

Brief Biography of Speaker:

- Dr. Chiu-Feng Lin is CEO of Metal Industries Research & Development Centre
- Full-time science and technology expert of the Technology Department of the Ministry of Economic Affairs (104.02~105.06)
- Dean of college of Engineering, National Pingtung University of Science and Technology (99.8-102.7)

Topic : PASM industry in Vietnam



Presentation title: Smart manufacturing 5G RRU filter and antenna component

Speaker's name and affiliation:

Dr. Minh-Dinh Bui

Lecturer and scientific researcher at Hanoi University of Science and Technology (HUST)

Brief Biography of Speaker:

- 2002 B.S. in electrical engineering of Hanoi University of Science and Technology,
- 2007 M.Sc. in electrical engineering of Hanoi University of Science and Technology
- 2014: Ph.D. at the Department of Electrical Drive, Institute for Power Engineering and Automation, Berlin Institute of Technology.
- 2014-Now: a lecturer and scientific researcher at Hanoi University of Science and Technology (HUST).

Abstract:

- Remote Radio Unit-RRU 5G Heatsink systems are using natural convection cooling due to some outstanding advantages such as low cost, high reliability, noiseless operation, and hard environment operation. However, some main disadvantages such as a relatively low heat transfer and low heat dissipation density are to be solve by optimal heat sink fin design. The RRU 5G -8T8R, 16T16R, 32T32R and 64T64R normally have big losses, sizes, volumes and complexities.
- Total heat losses of RRU 4G FPGA and PA is about from 240W to 300W based on operation modes. This paper describes an optimal heatsink fin profile design with V shape angle to maximize natural cooling for Active Antenna Unit-RRU 5G.

Topic : PASM industry in Taiwan



Presentation title: Taiwan Smart Machinery and Manufacturing-Current Situation and Future Prospects
臺灣智慧機械及智慧製造產業發展現況及未來展望

Speaker's name and affiliation:

Mr. Yung-Hsiang Lai, President, Precision Machinery Research & Development Centre

財團法人精密機械研究發展中心 賴永祥總經理

Brief Biography of Speaker:

- 2016-now , General Manager, Precision Machinery R&D Center
- Jan.-Mar.,2015, Exchange Researcher , RWTH Aachen University, Germany
- 2014-2016, Vice president, General Manager Division, Precision Machinery R&D Center
- 1999-2014, Division Director/ R&D manager, Strategic Planning Division/Mechanical and Systems Research, Precision Machinery R&D Center
- 1992-1999, Engineer, LEADWELL CNC Machines Mfg., Corp

Abstract:

- Smart Machinery is the key to connect the past and future. It is crucial for a business to adopt new technologies and be able to manufacture smartly. This presentation will give you a background idea about the current situation of the Taiwan machinery industry and its global position. Followed by an insight look of how the Taiwan government policy- “The Smart Machinery Promotion Program” assists firms to upgrade and transform to a smart factory. Last but not least, I hope this presentation will give you a better view of the Taiwan smart machinery.