International Symposium on Upcoming Prominent ENgineering solutions
September 29, 2023  Online, The Japan Society for Precision Engineering (JSPE)

The International Symposium on Upcoming Prominent ENgineering solutions (ISUPEN) will be held online on September 29, 2023. The symposium aims to strengthen cooperation with related overseas organizations and further promote the internationalization of JSPE. In this symposium, innovative R&D activities of researchers and engineers in the field of precision engineering will be introduced to reveal prominent engineering solutions for various recent social issues. The direction in which precision engineering should move toward to form an international community in the future will also be discussed. The symposium will consist of a special talk, 4 keynote lectures and 14 invited talks.

Japan Time
(GMT+9:00)
9:00  Opening address and Introduction to ISUPEN

Dr. Kazutoshi Katahira
Chairman of International Affair Committee of JSPE
Senior Research Scientist
RIKEN
Japan

9:05  Special talk: Message from the president of JSPE

Dr. Makoto Fujishima
President of JSPE
Vice President
DMG MORI CO., LTD.
Japan

9:15  Keynote 1: Courage to step into a new realm to be a global precision engineer

Prof. Masakazu Soshi
Professor
University of California Davis
U.S.A.
Session 1: Think about “how to make micro-structure (texture), “how to analyze them” and “phenomena at the interfaces”

9:45

**Texturing for biomaterials and its application to enhance surface function**

Prof. Masayoshi Mizutani
Professor
Tohoku University
Japan

10:05

**Engineering and measuring systemic multi-organ interactions**

Prof. Yi-Chin Toh
Associate Professor
The Queensland University of Technology
Australia

10:25

**Recent Advance and Future Potential in Synchrotron X-ray Tomography**

Prof. Wataru Yashiro
Professor
Tohoku University
Japan

10:45 Break
Session 2: How can we understand “what is happening” during the metal cutting process?

11:00

Direct observation of plastic deformation behavior in metal cutting process

Prof. Tatsuya Sugihara
Associate Professor
Osaka University
Japan

11:20

Surface integrity estimation in end milling by utilizing model-based inverse analysis of cutting force

Prof. Norikazu Suzuki
Professor
Chuo University
Japan

11:40

Complex plastic flows and the simulation of machining of ductile polycrystalline aggregates

Prof. Narayan K Sundaram
Associate Professor
Indian Institute of Science
India

12:00

Keynote 2: Visions of Korean Society for Precision Engineering (KSPE): Smart & Green

Prof. Sang Won Lee
Professor
Sungkyunkwan University
South Korea

12:30

Lunch time
| Session 3: JSPE Affiliate session  
- frontier research of JSPE young researchers - |
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<td>Vision of deployment of automated driving vehicles and their validation</td>
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<td>Dr. Masao Nakagawa</td>
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| Researcher  
National Traffic Safety and Environment Laboratory  
Japan |
| 13:30 |
| Plasma-electrolysis hybrid process for micro-/nano-structuring applications |
| Prof. Yonghua Zhao |
| Associate Professor  
Southern University of Science and Technology  
China |
| 13:50 |
| Vacuum pressure measurements through the use of laser and dimensional measurement techniques |
| Dr. Yoshinori Takei |
| Senior Researcher  
National Institute of Advanced Industrial Science and Technology (AIST)  
Japan |
| 14:10 |
| Microsensors: A New Toolkit for Understanding Cellular Metabolism |
| Professor Ganesh Kumar Mani |
| Research Assistant Professor (Former JSPS Fellow)  
Korea Advanced Institute of Science and Technology (KAIST)  
South Korea |
| 14:30 |
| Highly efficient slurryless electrochemical mechanical polishing of SiC wafers |
| Professor Yang Xu |
| Associate Professor  
Xi'an Jiaotong University  
China |
| 14:50 |
| Break |
15:00 **Keynote 3:** *AI-powered OCD metrology on high aspect ratio structures in semiconductor manufacturing*

Prof. Liang-Chia Chen

Professor
National Taiwan University
Taiwan

15:30 **Session 4:** Prominent technologies for industrial x-ray CT

15:30 *Trend of industrial x-ray CT and its applications*

Prof. Yukie Nagai

Associate Professor
Tokyo Metropolitan University
Japan

15:50 *XXL-CT – a holistic 3D object capture method for valuable insights*

Dipl.-Ing. Michael Salamon

Group Leader
Fraunhofer IIS
Germany

16:10 *Data and software challenges in X-ray CT*

Dr. Richard Boardman

Principal Scientist
University of Southampton
U.K.
Keynote 4:  Brief introduction of euspen and current research activities of Bremen University (LFM)

Dr.-Ing. Oltmann Riemer
Group Leader of Laboratory for Precision Machining (LFM)
Leibniz Institute for Materials Engineering - IWT
Germany

17:00 Closing

Organizing committee
Chair
Kazutoshi Katahira  RIKEN
Yukie Nagai  Tokyo Metropolitan University
Soo Hyeon Kim  The University of Tokyo
Ryo Koike  Keio University
Daisuke Matsuura  Tokyo Institute of Technology
Masayoshi Mizutani  Tohoku University
Masakazu Soshi  University of California Davis
Tatsuya Sugihara  Osaka University

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