

Poster Session

13:15 – 14:45, 14th November (Thu.) @ 1st Floor Poster area

Additive manufacturing

- P01 **Development of a multi-axis controlled automated system for the abrasive blasting of FDM 3D printed products**
G. Q. V. Santos*, J. Kaneko, T. Abe, K. Horio
**Saitama University*

Automation and Robotics

- P02 **Development of an algorithm to measure moving objects by using stereo vision**
Yoshito Yabuta*, Taichi Nakashima
**Tottori University*
- P03 **Effect of using AKAZE features to solve corresponding problem of stereo vision**
S. Yamabayashi*, T. Nakashima, Y. Yabuta
**Tottori University*
- P04 **The methodology for additional high speed linear transfer axis by input-shaping method**
O. Kwon*, D. Hong
**Korea University*

Bio/Medical Applications

- P05 **Study on material property of dental hard tissue:Evaluation of non-carious lesion**
H. Ohura*, T. Furumoto, Y. Hashimoto, A. Hosokawa, T. Koyano
**Kanazawa University*
- P06 **Precise control of DNA denaturation and amplification by vibration**
R. Kobayashi*, S. Yoneda, S. Yamaguchi
**Kanagawa University*
- P07 **Design and analysis of cell manipulation device using vibration and micro shapes**
M. Hagiwara*, A. Kakuta, H. Nakadate
**Tokyo National College of Technology*
- P08 **Analysis system of reaction on cultured cells of mouse brain by injection of stimulant liquids**
A. Kakuta*, M. I. Masood, E. Loris, K. H. Schäfer, D. Decker
**Tokyo National college of technology*
- P09 **Phase analysis of tendon sheath mechanism for haptic feedback**
J. Choi*, D. Hong, C. Lee, B. Kim
**Korea University*
- P10 **Effects of cutting edge shape and material of drill on performance of bone drill**
R. Tanaka*, T. Kaneeda, M. Terano, K. Kajita, A. Kono
**Okayama University of Science*
- P11 **Development of a system to monitor dementia patients in a hospital using depth sensor:- Monitoring the breathing state of patient -**
M. Fujio*, S. Koike
**National Institute of Technology, Numazu Collage*

High Speed and Precision Machining

- P13 **Improvement of removal rate and surface roughness by tool conditions in organic abrasive machining**
R. Oide*, Y. Matsuzawa, S. Yokomae, H. Hashizume, H. Mimura
**The University of Tokyo*

- P14 **Experimental investigation on creep feed profile grinding of γ -TiAl intermetallics**
X. Xi*, W. Ding, J. Zhan, C. Yang
*Nanjing University
- P15 **Study on the characteristics of Magnetorheological fluid dynamic pressure compound polishing force**
B. Luo*, Q. Yan, J. Pan, J. Lu
*GDUT
- P16 **Feasibility study of a flexible grinding method for precision machining of the TiAl-based alloy**
L. Zou*, Y. Huang, G.J. Zhang, X. P. Cui
*Chongqing University
- P17 **Evaluation of cutting condition of titanium alloy using cutting temperature**
T. Kujirai*, K. Akazawa
*Kobe Steel LTD.
- P18 **An experimental research on high-speed cutting performance of AlCrN coated HSS hob in dry hobbing**
A. Kubo*, H. Qiu
*Kyushu Sangyo University
- P19 **Compensation of form error according to temperature variation in DTM for ultra-precision flat surface machine**
H.-J. Choi*, W.-J. Yeo, J.-G. Park, B.-J. Jeong, G.-H. Kim
*Korea Basic Science Institute
- P20 **Toolpath generation method for high accuracy machining based on acceleration/deceleration characteristics of machine tools**
D. T. T. Khanh*, H. Aoyama
*Keio University

IoT/AI/Big Data

- P21 **Eccentricity and length distortion of spindle under the influence of temperature rising duration machining and compensation solution**
C.-S. Tran*, W.-Y. Jywe, J.-C. Shen, Y.-H. Sheu, T.-H. Hsieh, H.-L. Huang, P.-Y. Chen, Y.-M. Chueh, P.-C. Hong, H.-C. Chang
*National Formosa University
- P22 **Social network analysis of Industrial 4.0 components**
W. S. Yip*, S. To, H. T. Zhou
*The Hong Kong Polytechnic University

Manufacturing Systems and Machine Tools

- P23 **Warming-up operation of compact machine tools equipped with a wave motion gear device for reducing power consumption**
T. Okada*, T. Hirogaki, E. Aoyama
*Doshisha University
- P24 **Static and dynamic performance analysis of horizontal machine tool structure**
T.-C. Chan*, Y.-P. Hong, J.-S. Yang, J.-H. Yu
*National Formosa University
- P25 **The design of an integrated smart tool holder for six-axis cutting force measurement**
P. Zhang*, D. Gao, Y. Lu
*Harbin Institute of Technology
- P26 **Evaluation of the positioning accuracy of a mobile machine tool using a motion capture system**
D. H. Kim*, C. J. Kim, S. K. Ro
*Korea Institute of Machinery & Materials

- P27 **Thermal simulation for evaluation of cooling efficiency in continuous generating gear grinding.**
Y. Ikemoto*, T. Kizaki, L. Shu, K. Sekine, M. Ochi, T. Katsuma, N. Sugita
**The University of Tokyo*
- P28 **Local smoothing of tool path composed of straight lines with allowable machining error limit**
C.-Y. Lee*, B.-K. Min
**Yonsei University*
- P29 **Square 3x3 machining method for accuracy evaluation of five-axis machining centers**
S. Sakamoto*, T. Suzuki, K. Nakayasu, S. Koike
**Kumamoto University*
- P30 **Posture optimization to minimize compliance error in robotic drilling**
J. Lee*, S. H. Kim, T. I. Ha, B.-K. Min
**Yonsei University*

Mechatronics

- P32 **Improved APC system in machine tools using adaptive control method**
J. Park*, T. Oh, T. Jang, N. Choi, S. Kim, M. Oh, N. Cho, C. Yun
**Doosan Machine Tools*
- P33 **Design of a voice coil motor for vibration generator**
J. Park*, H. Kim, K. Kim, D. Ahn, S. Lee
**KITECH*
- P34 **Levitation height control of the levitation actuator considering frequency characteristics**
A. Nakazato*, A. Torii, S. Mototani, K. Doki
**Aichi Institute of Technology*
- P35 **The displacement of a 3-dof inchworm considering phase difference**
H. Miyake*, A. Torii, S. Mototani, K. Doki
**Aichi Institute of Technology*

Metrology

- P36 **3D self-calibration based on least squares**
X. Qiao*, X. Chen, G. Ding, J. Sun, J. Wei, X. Cai
**Shanghai Jiao Tong University*
- P37 **Deep learning based diamond wire saw inspection**
P.-H. Lu*, C.-C. Ho, Y.-J. Chang, M. Bolger
**National Taipei University of Technology*
- P38 **Single shot spectroscopic ellipsometry using polarized camera for measuring line profile of film thickness**
J. S. Kim*, K.-N. Joo
**Chosun University*
- P39 **Multi wavelength spatial phase shifting interferometry for the single shot surface profiling**
J. W. Jeon*, H. B. Jeong, K.-N. Joo
**Chosun University*
- P40 **3D non-contact profiling method using wavelength scanning interferometry**
Y. B. Seo*, Y.-S. Ghim, H.-G. Rhee, K.-N. Joo
**University of Science and Technology*

- P42 **Near-Infrared imaging absorption spectroscopy based on dual phase-locked femtosecond lasers**
T. Vu*, M. I. Afzal, J. Lee
**Seoul National University of Science and Technology*
- P43 **Uncertainty estimation and absolute depth calibration for multi-frequency phase shifting algorithm**
D.-H. Duong*, L.-C. Chen, C.-S. Chen
**National Taiwan University*
- P44 **Quantitative differential interference contrast microscopy for simultaneous orthogonal shear detection**
D. T. Bao*, L.-C. Chen, S. L. Yeh, S.-T. Lin
**National Taiwan University*

Micro/Nano Fabrication Processes

- P45 **Microscale transport phenomena of laser direct synthesis and patterning process for fabricating 3D electronics**
M.-T. Lee*, C.-A. Chen, C.-H. Hsu
**National Tsing Hua University*
- P46 **Formation of fine protrusions by sputter etching of stainless steels and evaluation of gripping ability of fiber sheets**
M. Nakamura*, K. Nakasa, A. Yamamoto, T. Sumomogi
**Hiroshima Kokusai Gakuin University*
- P47 **Porous polymer coatings on microneedles for pH-responsive drug delivery**
A. Ullah*, H. J. Choi, H. Khan, J. H. Choi, G. M. Kim
**Kyungpook National University*
- P48 **An experimental study of nanosecond pulsed laser micro-structuring of sapphire**
Q. Zhang*, Q. Wang, Z. Zhang, Z. Zhao, H. Su, Y. Fu, J. Xu
**Nanjing University of Aeronautics and Astronautics*
- P49 **Effect of the film thickness on reflectivity of magnetron sputtered metal film on aluminum mirror**
Y. Yan*, L. Mao, Y. Cao, Y. Geng
**Harbin Institute of Technology*
- P50 **Dual-line fabrication technique for rapid repetitive patterning in direct laser lithography**
Y. Kim*, Y.-S. Ghim, H.-G. Rhee
**University of Science and Technology*
- P51 **Flexible fabrication of discontinuous micro-freeform lens arrays with high-aspect ratio by a multi-axis offset-tool-servo diamond milling system**
Z. Sun*, S. To
**The Hong Kong Polytechnic University*
- P52 **Fabrication of a glass lenticular lens for naked eye 3D display by ultra-precision machining and embossing**
W.-B. Lee*, L. LI, M.-C. Ng, M.-K. Chan, C.-F. Cheung
**Harbin Institute of Technology*
- P53 **Fabrication process development of uniform nanopatterns on lens surface via the control of focus distance in laser interference lithography**
S. Je*, S. Hyun, J. Park, G. Kim
**Korea Basic Science Institute*

Non-Traditional Manufacturing Processes

- P54 **Study of the ball head by electrochemical machining**
C. H. Chang*, Z. W. Fan, W. T. Hung, Y. L. Chen, C. W. Chen
**Metal Industries Research & Development Centre*
- P55 **Fundamental research on machining of Ni surfaces using organic abrasives**
S. Yokomae*, Y. Matsuzawa, H. Hashizume, H. Mimura
**The University of Tokyo*
- P56 **Combined technique of magnetorheological polishing and acid etching for improving the laser-induced damage threshold of calcium fluoride**
C. Song*, Z. Lin, F. Shi, H. Hu, S. Chen, Y. Lin
**National University of Defense Technology*
- P57 **Micro-crack propagation and material removal behavior in rotary ultrasonic vibration scratching process of BK7 optical glass**
C. Huang*, M. Zhou, H. Zhang
**Harbin Institute of Technology*
- P58 **Machined surface improvement of SiCp/Al by EDM using carbon nanotube mixed dielectric**
X. Yang*, S. Jiang
**Harbin Institute of Technology*
- P59 **High speed ultrasonic turning for titanium alloy to improve processing efficiency and products quality**
K. Hara*, T. Fukuda, H. Isobe
**National Institute of Technology, Ichinoseki College*
- P60 **A comprehensive study on electrochemical oxidation of SiC single crystal**
Z. Chen*, Y. Zhao
**Southern University of Science and Technology*
- P61 **Studies on chemical reactivity of organic material and its application to planarization of glass surface**
J. Guo*, Y. Matsuzawa, H. Mimura
**The University of Tokyo*
- P62 **Analysis of the substrate temperature field for atmospheric pressure plasma jet processing**
H. Jin*, P. Ji, Y. Li
**The University of Tokyo*

Optical Applications

- P63 **Research on the combined polishing technology for high precision and damage free KDP crystal fabrication**
H. Hu*, C. Song, F. Shi, S. Chen
**National University of Defense Technology*
- P64 **LED drive circuit for multi-point wireless LED illumination**
K. Yamamoto*, H. Takahashi
**Shizuoka Institute of Science and Technology*
- P65 **Enhance surface inspection of precision steel ball by convolutional neural network**
Y.-J. Chen*, J.-C. Tsai, Y.-C. Hsu
**National Chung-Hsing University*
- P66 **Development of low-temperature terahertz near-field microscopy**
K.-T. Lin*, Q. Weng, S. Kim, S. Komiyama, Y. Kajihara
**The University of Tokyo*

- P68 **Spectroscopic interferometer with a large length range by rotating diffraction grating**
M. Chen*, S. Xie, J. Li, Q. Liu, G. Zhou, C. Lin, H. Yu, J. Zhou, H. Wu, H. Matsumoto, S. Takahashi, K. Takamasu
*Guangdong University of Technology

Precision Machine Design

- P69 **Structural analysis and experimental verification of moving column high-precision grinding machine**
T. C. Chan*, K. C. Chang, S. L. Chang, P. H. Chiang
*National Formosa University
- P70 **Thermal analysis and experimental verification of moving column high-precision grinding machine**
T. C. Chan*, K. C. Chang, S. L. Chang, C. M. Hu
*National Formosa University

Surface Properties and Characterinzation

- P71 **Mechanism study of electropolishing of pure titanium**
R. Yi*, H. Liu, H. Deng
*Southern University of Science and Technology
- P72 **Investigation of corrosion speed of Ag film line in atmosphere by electrical resistance technique**
T. Sasaki*, H. Tohmyoh
*Tohoku University
- P73 **Solid lubricant coatings for bearing application**
D.-G. Shin*, K.-M. Kang, Y.-H. Park, S.-W. Kim, D.-E. Kim
*Tohoku University
- P74 **Research of Au reflective films prepared on aluminum alloy substrates by e-beam evaporation**
J. Yin*, Y. Cao, Y. Yan, L. Lu
*Harbin Institute of Technology
- P75 **Investigation of a hierarchical Cu₂O-STA grooved hydrophobic surface on its corrosion resistance properties**
Y. Fu*, S. To
*The Hong Kong Polytechnic University

Other topics Related to Precision Engineering

- P76 **Investigation on the characteristic of acoustic emission signal from different grade of grinding wheels in sapphire wafer grinding**
Y.-K. Lin*, B.-F. Wu, C.-M. Chen, C.-J. Ting, K.-Y. Cheng, T.-H. Chou
*Industrial Technology Research Institute
- P77 **Application implementation of flowshop scheduling by genetic algorithm**
Y.-Y. Huang*, S.-Y. Huang, Y.-H. Sheu, Y.-M. Chueh, H.-F. Lee, H.-S. Chiu
*Institute For Information Industry
- P78 **Effects of fiber orientation angle on tool wear in CFRP routing**
G. Kim*, H. Jo, K. Song, M. B. G. Jun, B.-K. Min
*Yonsei University
- P80 **An investigation on vibration-assisted glass splitting**
J.-C. Tsai*, Y.-H. Tsai, M.-C. Lu
*National Chung-Hsing University