
Program of the ISAAT2025

The 27th International Symposium
on Advances in Abrasive Technology

ISAAT2025 Numazu

16-19 Nov. 2025, Numazu, Shizuoka, Japan



Plaza Verde

Main entrance of
Plaza Verde



Numazu Station
North Exit

Plaza Verde

1F

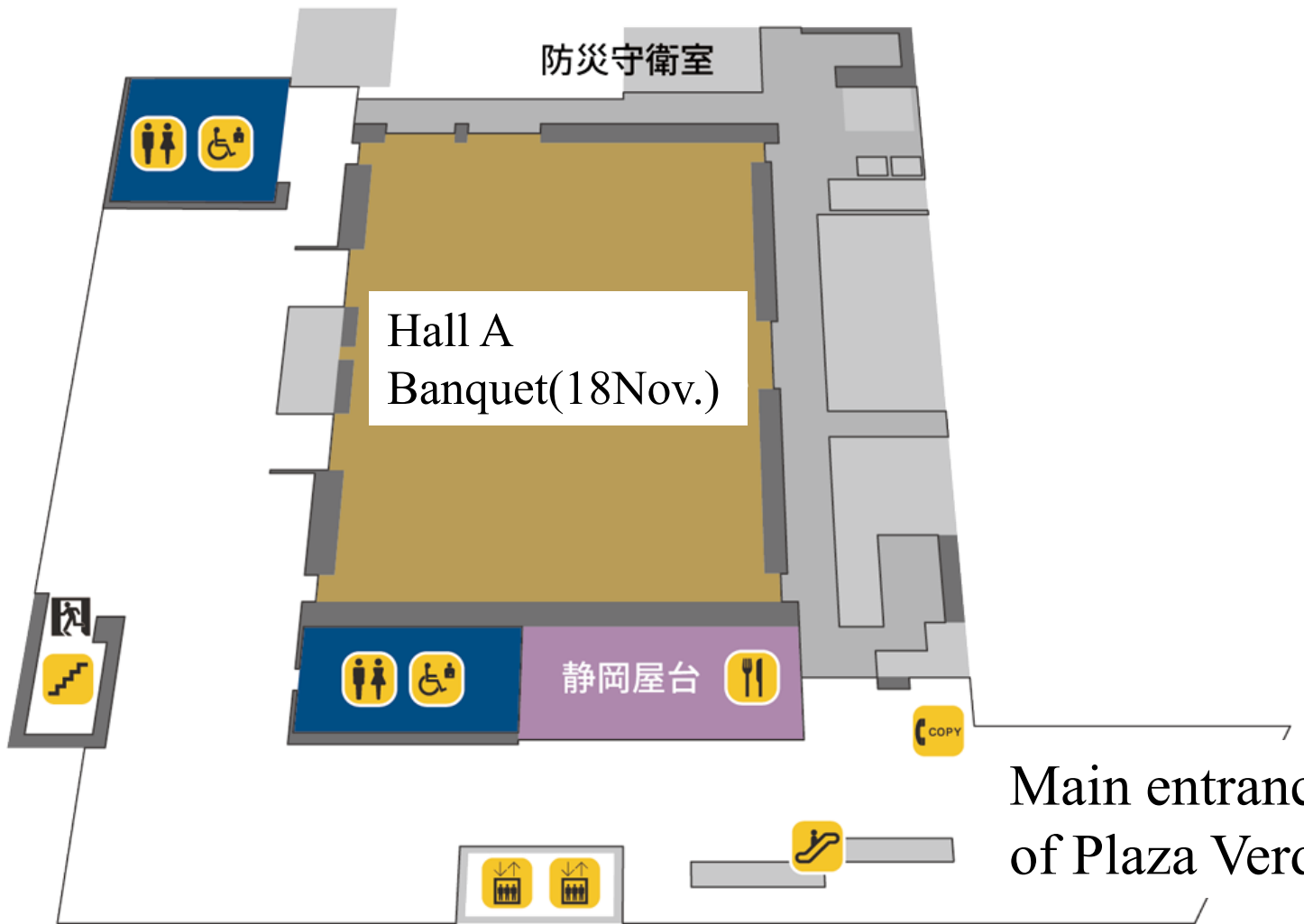
防災守衛室

Hall A
Banquet(18Nov.)

静岡屋台

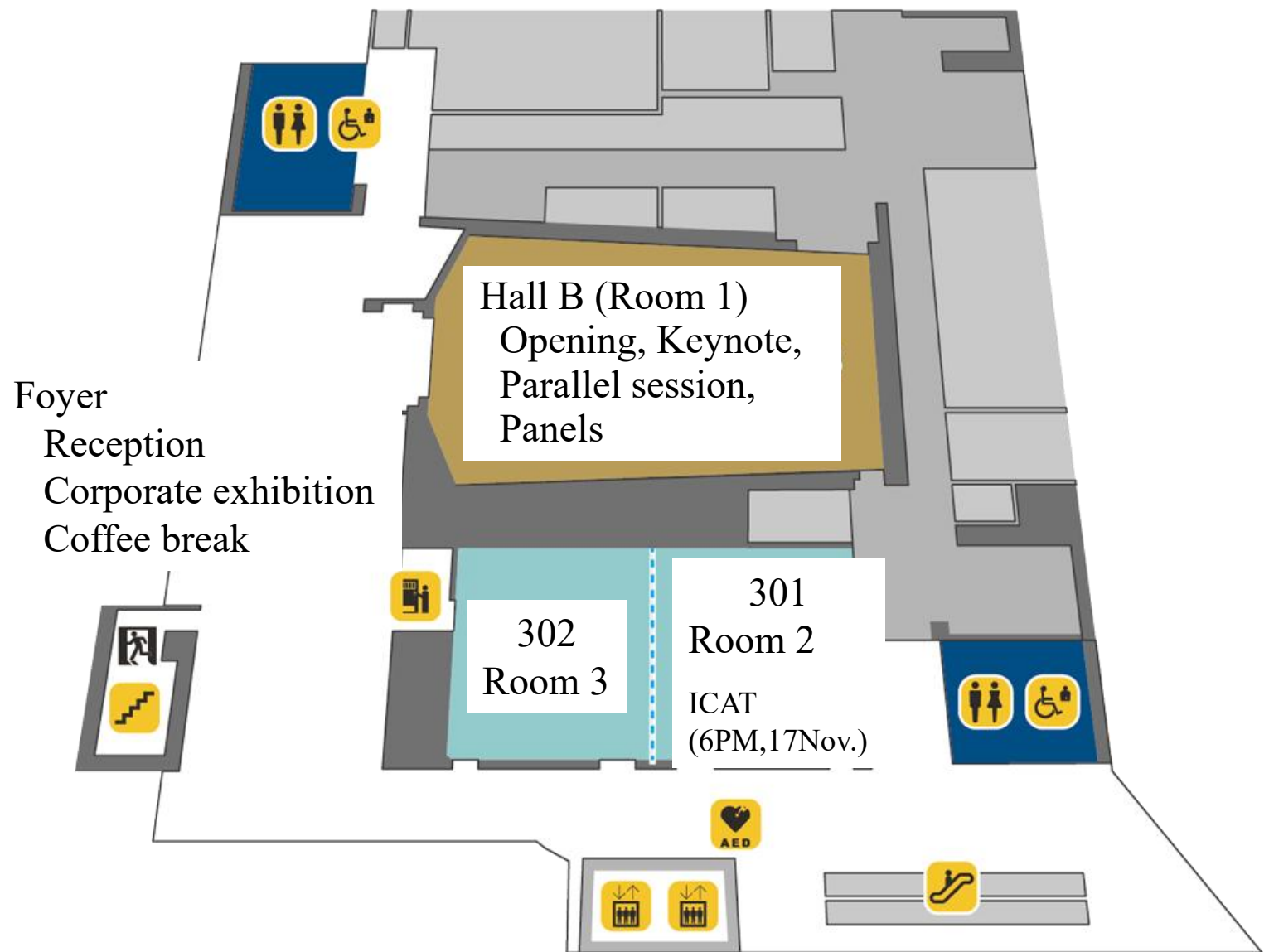
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Main entrance
of Plaza Verde



Plaza Verde

3F



Plaza Verde

4F



Symposium program

16 November (Sunday), 2025

Registration and reception

Registration 16:00–19:00 Hall B Foyer (3F)	Welcome reception 17:30–19:00 Rooftop Garden (Foyer if raining)
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17 November (Monday), 2025

Opening Session

	Room 1	
Start	Hall B (3F)	
9:00	Opening Ceremony	
9:20	Keynote speech 1	AI Powered Precision Machining <i>Prof. Han Huang (Sun Yat-sen University, China)</i>
10:00	Keynote speech 2	An Overview of Industrial Diamond Applications in the Semiconductor Industry <i>Dr. William Chen (Fine Abrasives Taiwan Co., Ltd., Taiwan)</i>
	Coffee Break	
10:50	Keynote speech 3	Shibaura Machine's approach to machine tools <i>Dr. Masahiko Fukuta (Shibaura machine Co., Ltd., Japan)</i>
11:30	Photo session	
	Lunch 12:00–13:00	

Parallel sessions 13:00–16:50

	Room 1 Hall B (3F)	Room 2 301 (3F)	Room 3 302 (3F)	Room 4 401 (4F)
	OS10 Finishing, lapping, polishing and deburring I	OS5 CMP and semiconductor wafer processing I	OS21/OS15 Applications of data science in manufacturing / Machine tools and systems, tooling I	OS18 Surface integrity and materials characterization
	Chair: Jinhu Wang	Chair: Naomichi Furushiro	Chair: Hidetake Tanaka	Chair Shinya Morita
13:00	[A01] Research on process parameter optimization of ultrasonic polishing of zirconia ceramics based on Fresnel-structured transducer <i>Mengkuan Zhao, Ming Feng, Xianglei Zhang, Baiyi Chen, Sisi Li</i>	[B01] Towards accurate CMP simulations: Bridging experimental data and numerical models for SiC wafers <i>Roberto Iaconi, Riku Tanaka, Kevin Richard G. Operiano, Susumu Maeda, Fumiya Kawate, Saeed Sepasy, Yoshifumi Watanabe</i>	[C01:Invited] Intelligent and sustainable laser micro/nano additive manufacturing technologies <i>Ming-Tsang Lee</i>	[D01] Investigating the drilling mechanisms of thermoplastic CF/PEKK and CF/PPS compared to thermosetting CF/Epoxy composites: a thermal-mechanical interaction analysis <i>Xunxun Zhang, Jielin Chen, Qinglong An, Weiwei Ming, Ming Chen</i>
13:20	[A02] A novel finishing method of micro holes with high aspect ratio by abrasive flow polishing <i>Nien-Tien Cheng, Hai-Ping Tsui, A-Cheng Wang, Yan-Cherng Lin</i>	[B02] Study of technology for fine conditioning of pad surfaces with fiber conditioner in CMP <i>Haruki Hashimoto, Takashi Fujita, Yuki Arai</i>	[C02] Performance comparison of single-channel and dual-channel G-sensor data for tool state recognition using deep learning <i>Min-Chieh Chen, Yue-Feng Lin, Ming-Yi Tsai, Ting-Hsueh Chuang</i>	[D02] Electrochemical Pretreatment for Cobalt Removal and Diamond Coating Deposition on Cemented Carbide Tools <i>Ming Lu</i>
13:40	[A03] Mechanistic study of friction-induced chemo-mechanical synergistic machining of 4H-SiC using Titanium-based metals <i>Tao Wu, Min Wu, Hui Huang</i>	[B03] Application of a Photocatalytic Polishing-Capable Grinding Wheel for Surface Preparation of SiC Wafers Prior to CMP <i>Lian Hong-Hui, Chen Kai-Jung, Wang Yu-Chen, Tsai Ming-Yi</i>	[C03] Development of Reinforcement learning Framework for Self-Optimization of Machining Parameters <i>Libo Zhou, Toshihiro Komatsu, Yusuke Morishita, Hirotaka Ojima, Huapan Xiao, Jiaming Zhan, Wei Hang, Jun Zhao, Dekui Mu, Han Huang</i>	[D03] Fracture and acoustic emission analysis of three-layer SiCf/SiC composite <i>Jingguo Zhou, Bin Lin, Pengcheng Zhao, Tianyi Sui</i>
14:00	[A04] Research on High-Efficiency Polishing of Gallium Nitride N-Face with Sol-Gel Polishing Films <i>Yikun Hu, Jing Lu</i>	[B04] Development of Eco-Friendly Functionalized TiO ₂ Photocatalytic Slurry for Enhanced Performance in Single-Crystal Silicon Carbide Wafer Chemical Mechanical Polishing <i>Kuo-Jen Hsu, Kai-Jung Chen, Ming-Gyi Tsai</i>	[C04] An identification method of position-independent geometric errors in the rotary axes of five-axis machine tools <i>Huanlao Liu, Li Xiang, Wang Yulin, Dai Xin</i>	[D04] Numerical Analysis of Notch Effects Under Varying Hole Depths on Blanking Machining of Amorphous Alloys <i>Jianjie Yuan, Chieko Kuji, Masayoshi Mizutani</i>
14:20	[A05] Modeling the Evolution of Edge Rounding in Magnet Workpieces during Centrifugal Barrel Finishing <i>Yohei Hashimoto, Rika Noda, Minoru Ito, Tetsuya Yamada</i>	[B05] Effects of Femtosecond Laser Surface Modification on Structural Changes of 4H-SiC Wafers <i>Yi-Han Chen, Kai-Jung Chen, Ming-Yi Tsai, Yen-Liang Yeh</i>	[C05] Development of grinding spindle with active control system using hydraulic servo valve <i>Rinta Tanaka, Shumon Wakiya, Dmytro Fedorynenko, Yohichi Nakao, Takumi Kurosu, Yusuke Suzuki</i>	
Coffee Break 14:40–15:10				
	OS10 Finishing, lapping, polishing and deburring II	OS5/OS6 CMP and semiconductor wafer processing II / Applications of abrasive technologies	OS15 Machine tools and systems, tooling II	OS19 Tribology in manufacturing
	Chair: Yohei Hashimoto	Chair: Takashi Fujita	Chair: Yohichi Nakao	Chair: Yutaka Kameyama
15:10	[A06] Molecular dynamics simulation and experimental study of CVD diamond graphitization during laser polishing process <i>Haojie Zhu, Fanghong Sun</i>	[B06] Study on Abrasive-Free Buff Polishing of GaN Substrates <i>Muhammad Zaim Iqbal Bin Mohd Faizal, Yuya Watanabe, Junichi Ikeno, Yohei Yamada, Tatsuya Shikano, Takeru Abe, Yasushi Hongo, Toshimasa Mano</i>	[C06] Virtual commissioning and machine improvement of optical glass lens centering process based on digital twin technology <i>Chia-Chi Chang, Wei-Han Chen, Yu-Chen Liang, Ke-Er Tang, Yu-Zhen Mao, Chun-Wei Liu</i>	[D06] Evaluation of Solid Lubricity of Aluminum Alloy Surfaces Textured by Vibration-assisted Cutting <i>Kaito Kunitan, Jun Shimizu, Takeyuki Yamamoto, Teppei Onuki, Hirotaka Ojima, Libo Zhou</i>

15:30	[A07] Model and experiments of spatial profile of material removal in non-contact shear thickening polishing <i>Jun Zhao, Wei Hang, Dekui Mu, Huapan Xiao, Jiaming Zhan, Libo Zhou, Han Huang</i>	[B07] Study on the microwave plasma modification-assisted shear-thickening polishing for silicon carbide wafer <i>Wei Hang, Jun Zhao, De Kui Mu, Hua Pan Xiao, Jia Ming Zhan, Li Bo Zhou, Han Huang</i>	[C07] Fundamental study on chip control in turning <i>Ryu Kijima, Masahiko Jin</i>	[D07] Investigation of hydration layer strength in molecular dynamics simulation model of silicon CMP <i>Fumito Suga, Jun Shimizu, Kazuki Kaneko, Teppei Onuki, Hirotaka Ojima, Libo Zhou</i>
15:50	[A08] Material removal mechanism in Fenton based AlN ceramic substrate polishing process <i>Liang Zhao, Kaiping Feng, Binghai Lyu</i>	[B08] Investigation of material removal distribution at the edges during silicon wafer polishing <i>Yuki Tamaki, Yuta Seguchi, Urara Satake, Toshiyuki Enomoto</i>	[C08] Performance of a novel Ti-Ni based diamond wheel for Hard and brittle single crystals <i>Dekui Mu, Guihua Yu, Han Huang, Libo Zhou, Jun Zhao, Wei Hang, Huapan Xiao, Jiaming Zhan</i>	[D08] Localized Hydrostatic Pressure-assisted Cutting of Aluminum with a Rolling Element <i>Jun Shimizu, Takeyuki Yamamoto, Teppei Onuki, Hirotaka Ojima, Libo Zhou</i>
16:10	[A09] Reducing Wafer Bow and Warp through Optimized Diamond Grit Arrangement and Grinding Path Design <i>Wang Yu-Chen, Tsai Ming-Yi, Lian Hong-Hui</i>	[B09] Effect of stress distribution on subsurface damage occurrence directly below indentation at small load in fused silica <i>Ranto Inoue, Ryutarou Kurakami, Naomichi Furushiro, Daisuke Hirooka, Tomomi Yamaguchi, Katutoshi Sumida, Kenichi Tanada</i>	[C09] Tool path compensation for tracking error in fast travelling focused on highly efficient and precise freeform surface machining <i>Sho Sakataya, Masahiko Fukuta</i>	[D09] Sustainable Tribological Solutions: Ceramic-Coated Shaft Sleeves Optimized through Ultrashort-Pulsed Laser Structuring and Precision Grinding <i>Masih Paknejad, Robert Bössinger, Bahman Azarhoushang, Andreas Kailer, Georg Konrath, Andreas Killinger, Matthias Blum, Tom Pfindel, Esmaeil Ghadiri Zahrani</i>
16:30			[C10] Investigation of monitoring method by spindle motor current during step drilling in multi-spindle drilling machine <i>Atsushi Yamamoto, Makoto Hosaka, Masao Nakagawa, Toshiki Hirogaki</i>	

18 November (Tuesday), 2025

Parallel Sessions 8:40–15:00

	OS10 Finishing, lapping, polishing and deburring III	OS1 Abrasive machining I	OS14 In-process measurement, monitoring and metrology I	OS12 Grinding wheel and abrasive grain technologies I
	Chair: Hirofumi Suzuki	Chair: Keisuke Hara	Chair: Yasutake Haramiishi	Chair: Gen Uchida
8:40	[A11] Insights into the atomic-scale removal mechanism of SiC irradiated by plasma <i>Yuan Julong, Luo Congyue, Han Yunxiao</i>	[B11] Research on Surface Residual Stress in Profile Grinding of Nickel-Based Superalloy K444 <i>Min Li, Xiangyu Huang, Renhao Nan, Ning Qian, Linbo Che, Wenfeng Ding, Jiuhua Xu</i>	[C11] Grain size distribution evaluating with micro-Raman image on working surface of fine-granularity grindstone <i>Ryo Taguchi, Ryohei Tazawa, Teppei Onuki, Hirotaka Ojima, Jun Shimizu, Libo Zhou</i>	[D11] Preparation and Performance of Structured Micro Spherical PCD Grinding Tools for Micro-structures Machining <i>Kexin Li, Yinghui Ren</i>
9:00	[A12] Flow field characteristics and experimental study of quartz glass constrained flow field shear rheological polishing <i>Shuqi Wang, Jinhu Wang</i>	[B12] Energy partition analysis in the grinding of Inconel-718 superalloy with heat pipe grinding wheel under MQL condition <i>Chengxiang Li, Ning Qian, Yucan Fu, Fan Jiang, Slawomir Pietrowicz, Xincheng Ma</i>	[C12] ML-based Cutting Force Estimation Using Motor Command Signals <i>Taku Hoshiya, Natsuki Meguro, Yasuhiro Kakinuma</i>	[D12] Mirror-finishing surface grinding technology for SiC substrate using PCD grinding tool with three-dimensional high-density cutting edges <i>Haruto Konishi, Takashi Fujita, Yuki Izutani, Yasuo Izumi, Junji Watanabe, Jun Nishiyama</i>
9:20	[A13] Anhydros based shear thickening ultra precision polishing of KDP crystal <i>Fangyuan Chen, Linbin Huang, Julong Yuan</i>	[B13] Performance Evaluations of Small Electroplated CBN Wheels in Grinding Nickel Alloys <i>Zhongde Shi, Helmi Attia, Nicola De Palma</i>	[C13] An online chatter detection method for milling based on multi-sensor feature fusion and optimized K-means algorithm <i>Yawei Zheng, Zhengcai Zhao, Jiuhua Xu</i>	[D13] Nanosecond Laser Ablation Mechanism and Surface Microstructuring of CBN Grinding Wheel <i>Zhipeng Li, Quanli Zhang, Wenfeng Ding, Yucan Fu, Jiuhua Xu</i>
9:40	[A14] Effect of chemical action on shear thickening polishing of YAG <i>Wei Fang, Binghai Lyu</i>	[B14] Experimental Investigation of Chatter Vibration Mechanism Based on Variation of Acting Wheel Surface in Cylindrical Plunge Grinding <i>Koki Hatachi, Yuki Matsumoto, Hiroyuki Kodama, Kazuhito Ohashi</i>	[C14] Analysis of Spindle Current Variations During the Wafer Grinding Process <i>Tsai Jung Tsai, Chen Kai Jung, Tsai Ming Yi, Chen Chun Yen, Huang Shou Zheng</i>	[D14] Effect of Grinding Wheel Bond Type in Quartz Glass Machining Process <i>Takayuki Hirata, Syogo Shibata, Himeka Okochi, Toshikazu Chida</i>

Coffee Break				
10:00–10:30				
OS9 Ultrasonic machining I		OS1 Abrasive machining II		OS14 In-process measurement, monitoring and metrology II
Chair: Shinichi Ninomiya		Chair: Kazuhito Ohashi		Chair: Teppei Onuki
10:30	<p>[A15] Micro grinding of glass plate using ultrasonic assisted-coolant</p> <p><i>Hirofumi Suzuki, Kotaro Kawamura, Tatsuya Furuki, Akinori Yui</i></p>	<p>[B15] Fabrication and polishing performance of CVD diamond-coated SiC abrasives</p> <p><i>Dongdong Liu, Fanghong Sun</i></p>	<p>[C15] Grinding Behavior Analysis and Process Monitoring of Cylindrical Grinding in Lens Centering Using Acoustic Emission Signals</p> <p><i>Tsung-Huan Tsai, Yu-Chen Liang, Shiao-Cheng Shiu, Hung-Tsai Wu, Ta-Hsin Chou, Chun-Wei Liu</i></p>	<p>[D15] Evaluation of the Effects of Machining Conditions on the Plastic Pile-up Performance in Single Abrasive Grain Grinding</p> <p><i>Gen Uchida, Xun Chen, Juan Ignacio Ahuir-Torres, Alireza Eslami Majd</i></p>
10:50	<p>[A16] Fundamental Study on Precision Ultrasonic Vibration Polishing of SiC Wafers</p> <p><i>Thanawan Bunpheng, Hakuto Nakano, Peerapong Kasuriya, Sutasn Thipprakmas, Masahiko Jin</i></p>	<p>[B16] Clarifying the improvement of the machining efficiency by ultrasonic vibration through tip-based single asperity nanoscratching</p> <p><i>Hanqiang Wu, Jiang Zeng, Chen Xiao, Yongbo Wu</i></p>	<p>[C16] In-situ Areal Surface Texture Measurement on Machined Surfaces using Autofluorescence of Lubricating Oil</p> <p><i>Saeko Fujii, Shuzo Masui, Masaki Michihata, Satoru Takahashi</i></p>	<p>[D16] Study on Performance of High Feed Rate Face Grinding of Cemented Carbide with Cup Type Electroplated Grinding Wheel</p> <p><i>Takanori Fujiwara, Shimpei Horiguchi, Takashi Onishi, Kazuhito Ohashi</i></p>
11:10	<p>[A17] Development and Mechanistic Investigation of Ultrasonic Vibration-Assisted Grinding for 6/8-Inch SiC Wafers</p> <p><i>Shou Zheng Huang, Ming Yi Tsai, Tsai Jung Tsai</i></p>	<p>[B17] A grinding process-microstructure-surface property correlation model for grinding burn mitigation in TPMM35 powder metallurgy high-speed steel</p> <p><i>Lanyu Shi, Chenguang Wang, Kenan Zhang, Qinglong An, Weiwei Ming, Ming Chen</i></p>	<p>[C17] Evaluation of the state of abrasive grains on the surface of grinding belts using polarization camera features</p> <p><i>Seren Omori, Yasutake Haramiishi, Tsuyoshi Shimizu</i></p>	<p>[D17] Thermal effect of cup wheel grinding based on acoustic emission signal</p> <p><i>Pengcheng Zhao, Bin Lin, Jingguo Zhou, Tianyi Sui</i></p>
11:30	<p>[A18] Evaluation of Ultrasonic Milling Performance for Ti₂AlC MAX Phase Ceramics</p> <p><i>Keisuke Hara, Naoya Yamaguchi, Naofumi Tsuji, Kota Takashima, Hirofumi Kawamura, Yen-Ling Kuo, Makoto Nanko, Hiromi Isobe</i></p>	<p>[B18] Superfinishing of Cr³⁺ HVOF coatings using a new generation of rubber-bonded superabrasive elastic wheels</p> <p><i>Iñigo Pombo, José A. Sánchez, Leire Godino, Jorge Álvarez, Egoitz Burgo</i></p>	<p>[C18] Turret Vibration Monitor with High-Speed Sampling Wireless Communication and Diagnosis of turning process with integrated servo information</p> <p><i>Yusuke Nozaki, Takamasa Yamamoto, Ryo Matsuda, Kaito Tanaka, Masao Nakagawa, Toshiaki Hirogaki</i></p>	<p>[D18] Enhanced Precision Control of CNC Machine Tool Using a Two-DOF Multivariable Iterative Learning Approach</p> <p><i>Yulin Wang, Xuechuan Mei, Huanlao Liu, Can Liu</i></p>
Lunch				
11:50–13:00				
OS9 Ultrasonic machining II		OS3 Advanced cutting technology	OS4/OS16 Beam processing and related topics / Additive manufacturing and related topics	OS8/OS17 EDM and non-traditional machining / Micro/nano-machining
Chair: Masahiko Jin		Chair: Mitsuyoshi Nomura	Chair: Hirofumi Hidai	Chair: Manabu Iwai
13:00	<p>[A19] Propose of a dual-frequency ultrasonic aspirator based on the Langevin transducer</p> <p><i>Zhicheng Liao, Shibo Zhang, Yanan Zhu, Yongbo Wu</i></p>	<p>[B19] Study on high accuracy machining of vertical wall</p> <p><i>Kenshiro Tamaki, Tatsumaru Ishiyama, Takekazu Sawa</i></p>	<p>[C19] Feasibility study on planarization by electrodeless photoelectrochemical etching with evanescent light</p> <p><i>Kaito Miyakoda, Naoto Takahashi, Hirofumi Hidai, Sho Itoh, Souta Matsusaka</i></p>	<p>[D19] Electrical Discharge Assisted Turning of CFRP under Low Voltage Conditions</p> <p><i>Hidetake Tanaka, Ryuta Kuboshima, Emir Yilmaz</i></p>
13:20	<p>[A20] Investigation on ultrasonic assisted wafer stripping in laser slicing of single crystal SiC ingot</p> <p><i>Zhuo Chen, Liqi Gong, Linhe Sun, Qiang Wang, Hanqiang Wu, Yongbo Wu</i></p>	<p>[B20] Reducing tool wear in ultra-precision diamond turning using cutting-edge-slipping method with straight-nosed diamond tools</p> <p><i>Xiangyu Zhou, Minghan Chen, Linhe Sun, Yongbo Wu</i></p>	<p>[C20] Study on the femtosecond laser processing temperature field simulation of single crystal GaN substrate</p> <p><i>Chuanzhen Huang, Huilai Wei, Zhenyu Shi, Shuiquan Huang, Baosu Guo</i></p>	<p>[D20] Effect on EDM Property by UFB Coolant With Various Gases</p> <p><i>Taiki Niimura, Manabu Iwai, Satoshi Anzai, Takayuki Hirata, Shinichi Ninomiya</i></p>
13:40	<p>[A21] Skiving performance by ultrasonic vibration-assisted method</p> <p><i>Shinnosuke Takano, Manabu Iwai, Yoshihiro Take, Takayuki Hirata, Shinsuke Uchida, Shinichi Ninomiya</i></p>	<p>[B21] An investigation of hybrid dual-pulse-width laser-waterjet machining of monocrystalline silicon carbide</p> <p><i>Dalin Guo, Tianpeng Dun, Jun Wang</i></p>	<p>[C21] Comparative Study on the Torque Performance of SUS 316L Screws Fabricated by Selective Laser Melting and Conventional Turning</p> <p><i>Shih-Yu Yen, Kai-Jung Chen, Kuo-Tuo Huang, Yue-Feng Lin</i></p>	<p>[D21] Resistance enhancement mechanism and sustainable drug release of surface modification titanium mandibular drug reservoir</p> <p><i>Zhiwen Xiang, Chengdong Wang</i></p>

14:00		[B22] Gradual Reaming Method for Large-diameter Hole Machining of Multi-layer CFRP/Ti Stacks <i>Pengjie Gao, Tai Ma, Haihang Wang, Yongliang Yan, Xiaoyan Fan, Weiwei Ming, Qinglong An, Ming Chen</i>	[C22] Understanding Corrosion Mechanisms in Additive Manufactured 17-4 PH Stainless Steel: The Influence of Post-Processing and Passive Film Regeneration <i>Xiaoxiao Liu, Juan Ignacio Ahuir Torres, Jackson William Chadwick, Tahsin Tecelli Opoz, Xun Chen</i>	[D22] Exploring the processing parameters on the machining performance in ultrasonic-assisted nanoscratching of the 4H-SiC <i>Hingwaih Tsang, Siyu Sun, Jiang Zeng, Hanqiang Wu, Yongbo Wu</i>
14:20		[B23] Effect of Cryogenic Treatment on 7A09 Aluminum Alloy and Optimization of Process Parameters <i>Xianguo Yan, Yuhang Liu, Zhi Chen</i>	[C23] Ultrasonic burnishing with a ball end mill on SUS316L <i>Tsuyoshi Shimizu, Yasutake Haramiishi, Akira Yoneyama, Atsushi Amemiya</i>	[D23] Atomistic study of material removal behavior during ultrasonic vibration-assisted nanoscratching of single-crystal AlN <i>Chen Xiao, Jian Guo</i>
14:40		[B24] Enhancing Biological Soft Tissue Cutting Processes to Minimize Tissue Damage <i>Ryusei Senda, Urara Satake, Ryutaro Sambe, Toshiyuki Enomoto</i>		
Coffee Break 15:00–15:40				

Poster Sessions 15:40–17:00 Hall B

15:40–17:00	
P01	Enhanced responsiveness in temperature control of built-in motor spindle <i>Haruki Kawanami, Ryota Ishida, Shumon Wakiya, Yohichi Nakao</i>
P02	A predictive model for static-dynamic characteristics of hydrostatic guideway and experimental validation <i>Dongyu Tian, Feihu Zhang, Qiang Zhang, Longjiang Zhang, Yunqiang Li</i>
P03	A Study on the Magnetic Deburring Method for Hypodermic Needles <i>Yanhua Zou</i>
P04	Study on dimensional accuracy and surface finish of fuel nozzle holes in ultrasonic-assisted single-stroke honing <i>Tianyi Zhang, Changyong Yang, Yingying Yuan, Yucan Fu</i>
P05	Investigation of Machining Process in Micro-Diameter End Milling of PI Resin Laminated Pressed Plate <i>Mitsuyoshi Nomura, Takamitsu Hanawa, Tatsuya Fujii, Tsunehisa Suzuki</i>
P06	Efficiency improvement of finish milling by milling path correction in consideration of surplus sintering on metal additive manufacturing <i>Tatsuya Furuki, Ryo Tanaka, Hiroki Ninomiya</i>
P07	Tribological properties of zinc-transferred surface fabricated with fine particle peening <i>Yutaka Kameyama, Hiroaki Yamanishi, Hideaki Sato, Ryokichi Shimpo</i>
P08	Application of Generative AI for Data Augmentation and Quality Classification in Ultrasonic-Assisted Grinding <i>Chung-Ying Wang, Hui-Jean Kuo, Wen-Tse Hsiao, Chienyao Huang</i>
P09	Refurbishment of Polycrystalline Diamond Tools for Sustainable High-Value Manufacturing <i>Tahsin Tecelli Opoz, Xiaoxiao Liu, Xun Chen, Hiren Kotadia, Helen Elkington, Sundar Marimuthu</i>
P11	Understanding the Deformation Mechanisms of Single Crystal Gallium Nitride in Grinding Mimicked by Nanoscratching <i>Yunpeng Wang, Yueqin Wu, Hui Huang, Xipeng Xu</i>
P12	Effect of Fine Titanium Particle Peening on Surface Morphology and Fatigue Properties of SUP12 Spring Steel <i>Ryosuke Yokoyama, Shozo Hirano, Hidekazu Ito, Kazuyoshi Nono, Shoichi Kikuchi</i>

P13	Development of an Intelligent CAM System with On-Machine Automatic Deburring Function Study of Tool Path Generation Algorithm for Automatic Deburring <i>Mikio Fujio, Tsubasa Kikuchi, Kentaro Ootsuka, Keisuke Miwa</i>
P14	Fabrication of simulated peening scars using laser irradiation patterning and their fatigue properties <i>Tatsuki Itakura, Miu Hayashi, Hiroyuki Akebono, Shoichi Kikuchi</i>
P15	Study on prediction of tool breakage by machine learning <i>Nobuhito Yoshihara, Tomoki Katabira, Masahiro Mizuno</i>
P16	3D Characterization of Process-Induced Porosity in SLM-Fabricated Al-Mg-Sc Alloys A Comparison of Serial Sectioning Microscopy and X-ray CT <i>Shinya Morita, Kanta Suzuki, Yuuki Aida, Shoan Mizuno, Shinichi Tomiyama, Norio Yamashita, Hideo Yokota</i>
P17	Research on the Effect of Ultrasonic Vibration-Assisted Laser Percussion Drilling on Micro-hole Morphology <i>Ping Zou, Yaotian Cheng, Yadong Gong, Xuelong Wen</i>
P18	Analysis of Subsurface Damage in 6-inch Single-Crystal Silicon Carbide Wafer Slicing Using Advanced Diamond Multi-Wire Sawing Assisted by Electrophoretic Deposition and Reactive Abrasive <i>Jin-Wei Yang, Hung-Chang Lien, Po-Shen Chen, Chao-Chang Chen</i>

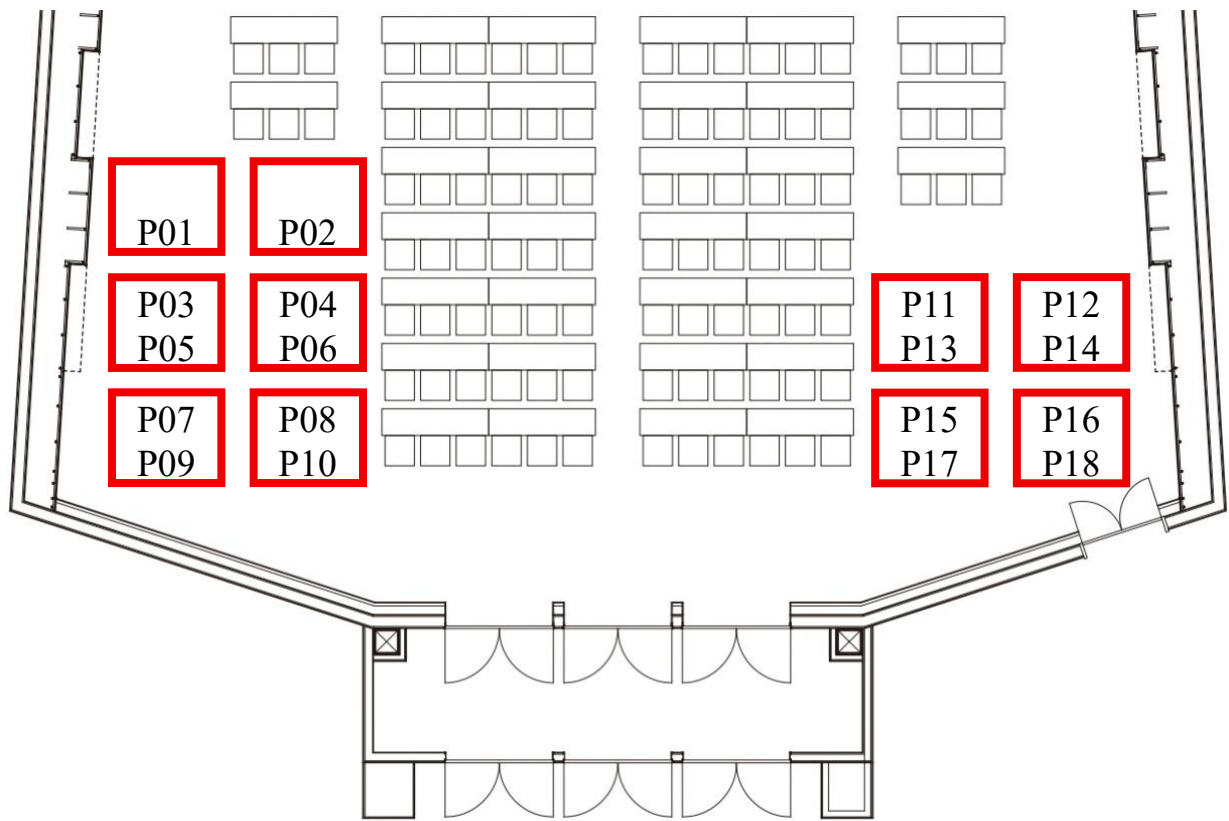
Banquet 18:00– Hall A

19 November (Wednesday), 2025

Technical Tour 8:30–15:00

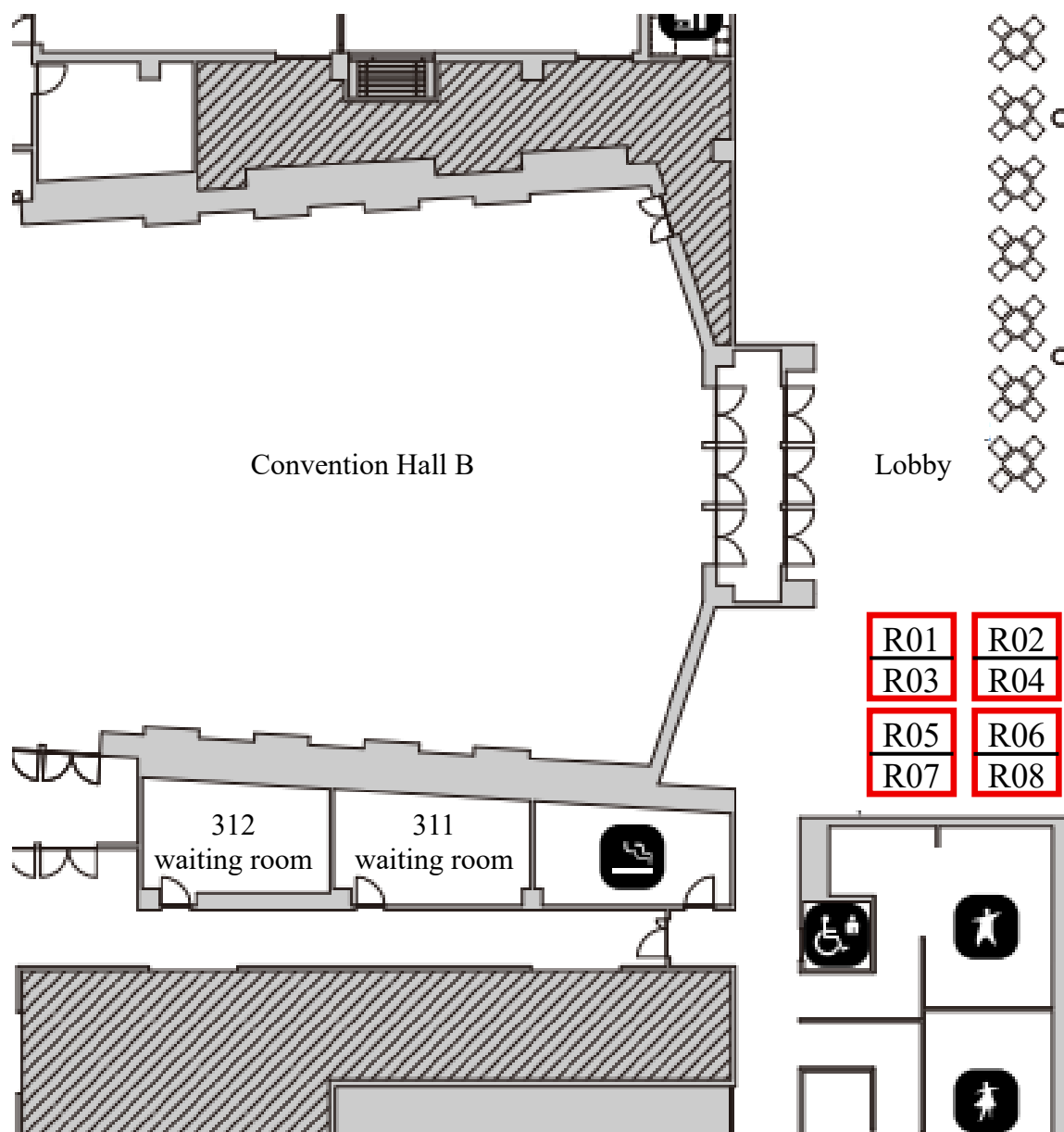
8:30	Depart from Plaza Verde
8:50–9:05	Arrive at Shibaura Machine
9:15–11:30	Factory tour
11:30	Lunch
12:45	Depart from Shibaura Machine
13:00–	Visit MISHIMA SKYWALK
15:00	End of tour at Mishima station or Numazu station

Poster Session Layout (3F Convention Hall B)



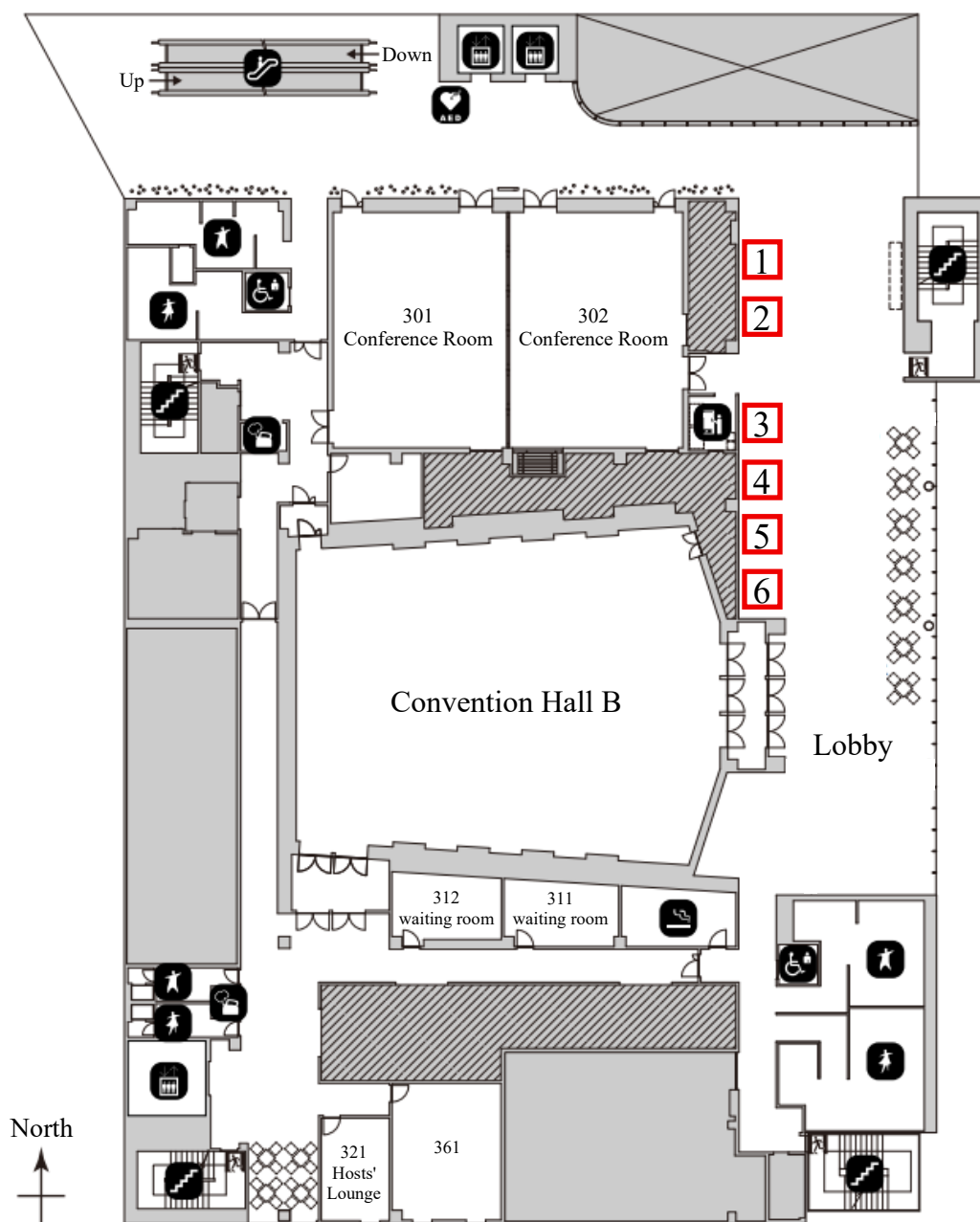
P01	Enhanced responsiveness in temperature control of built-in motor spindle
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P16	3D Characterization of Process-Induced Porosity in SLM-Fabricated Al-Mg-Sc Alloys A Comparison of Serial Sectioning Microscopy and X-ray CT
P17	Research on the Effect of Ultrasonic Vibration-Assisted Laser Percussion Drilling on Micro-hole Morphology
P18	Analysis of Subsurface Damage in 6-inch Single-Crystal Silicon Carbide Wafer Slicing Using Advanced Diamond Multi-Wire Sawing Assisted by Electrophoretic Deposition and Reactive Abrasive

Research Institution Panel Exhibition Layout (3F Lobby)



No.	Organization name
R01	National Taiwan University of Science and Technology
R02	Tokyo Denki University
R03	Ibaraki University
R04	Akita Prefectural University
R05	Chiba Institute of Technology
R06	Chiba University
R07	Okayama University
R08	Iwate University

Company Exhibition Layout (3F Lobby)



No.	Company name
1	Shibaura Machine CO., LTD
2	Tipton Corp.
3	SINTOKOGIO, LTD.
4	Aixtal Corporation
5	JAPAN INDUSTRIAL PUBLISHING CO., LTD.
6	YASUNAGA CORPORATION

Shibaura Machine

View the Future with You



SCARA Robot
THE series



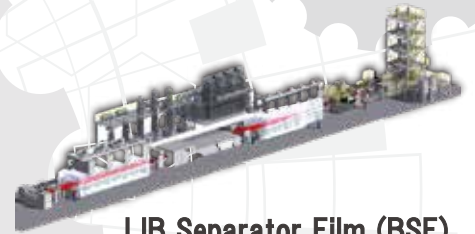
All Electric Injection Molding Machine
EC-SXIII series



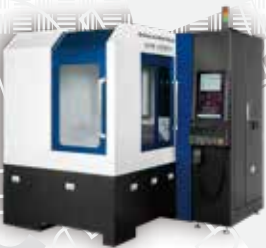
Die Casting Machine
DC-R2 series



Additive
Manufacturing Machine
ZK series



LIB Separator Film (BSF)
Manufacturing Unit



High Precision
Machining Center
UVM Series



Table Type Horizontal
Boring and Milling Machine
BTH series



High Precision Aspheric
and Free-form Surface Grinder
ULC/ULG Series, LG Series



Double Column Type
Machining Center
MPC-H series

**We will contribute
to maximizing value
for our customers around the world.**

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<https://www.shibaura-machine.co.jp/en/>



現場の答えが見つかる
研削加工の専門展示会



www.gtj-expo.jp

SiC、GaN、ダイヤモンドその他
ワイドバンドギャップ半導体
SiC, GaN, Diamond and other
Wide Band Gap Semiconductors

先進パワー
半導体ウエハ
加工技術展 2027

Advanced Power Semiconductor Wafer Machining Expo

www.sicgan-expo.jp

開催決定!! 10月より出展募集開始

2027年3月10日(水)～12日(金) 幕張メッセ

主催：日本工業出版／産経新聞社

Grinding Technology Japan 2027

企画：日本工業出版(株)「機械と工具」編集部
特別協力：(公社)砥粒加工学会(予定)

【出展対象】

- 研削盤 ● 研磨盤 ● 砥石 ● ツルージング装置 ● 計測機器
- 周辺機器 ● 研削工具 ● 工具研削盤 ● 切削工具
- 切削工具製造技術 ● 切削工具活用技術 ● 切削油
- 切削油供給装置 ● 切削油ろ過装置 他

先進パワー半導体ウエハ加工技術展 2027

特別協力：(公社)砥粒加工学会、
(公社)応用物理学会先進パワー半導体分科会(予定)

【出展対象】

- 先進パワー半導体ウエハ関連加工装置(スライシング、研削・研磨、ラッピング、ポリシング、CMP、ベベリングなど)、関連工具・資材(砥石、研磨パッド、研磨スラリー)、ウエハ洗浄装置、ウエハ測定・評価装置

2025年 開催実績

■来場者数

会期	Grinding Technology Japan 2025/SiC, GaN加工技術展
3月5日(水)	1,786 名
3月6日(木)	2,074 名
3月7日(金)	2,664 名
合計	6,524 名

■出展規模

出展者数/小間数		249 社・団体・研究室	320 小間
内訳	Grinding Technology Japan 2025 出展者	126 社・団体	264 小間
	SiC, GaN 加工技術展 2025 出展者	53 社・団体	56 小間
	砥粒加工学会 研究発表コーナー	24 研究室	
	砥粒加工学会 卒業研究発表会	29 研究室	
	砥粒加工学会 賛助会員コーナー	17 社	

出展者アンケート

出展に関する資料をご希望の方は
右記QRコードよりお申し込みください



お問い合わせ先

産経新聞社 事業本部 コンベンション事業部 TEL：03-3278-6180
「Grinding Technology Japan 2027 事務局」…………… E-mail：gtj@sankei.co.jp
「先進パワー半導体ウエハ加工技術展 2027 事務局」…………… E-mail：sicgan@sankei.co.jp

Hi-Gravitational Barrel Finishing Machine



Mighty-Mild®

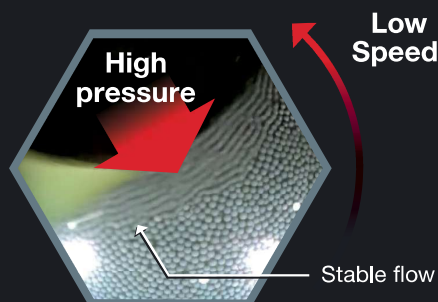
Patent No. W02013125491

"2-motor drive system" enables precise & gentle mass finishing !!

Mighty-Mild®



2 - Motor Drive



Low speeds at high pressure
enables precise and gentle polishing

Few scratches
(Microscopic view)



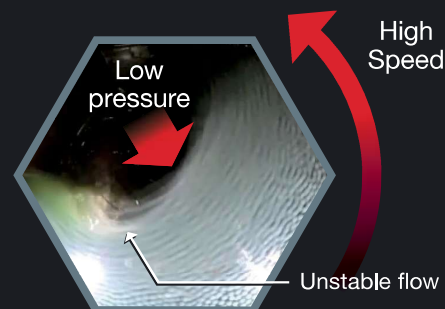
Deep confines reachable



Conventional Centrifugal Machines

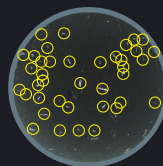


1 - Motor Drive



High speeds at low pressure
causes damage to workpieces

Many scratches
(Microscopic view)



Deep confines unreachable



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YouTube

A Mass Finishing Company

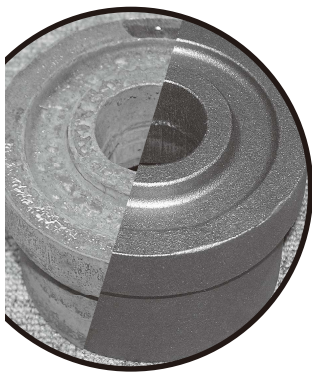


Tipton Corp.

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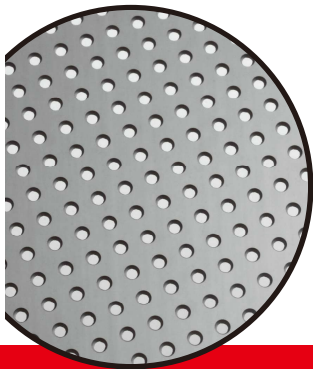
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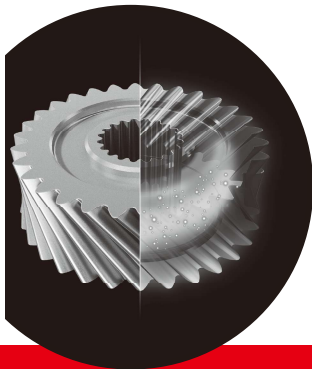
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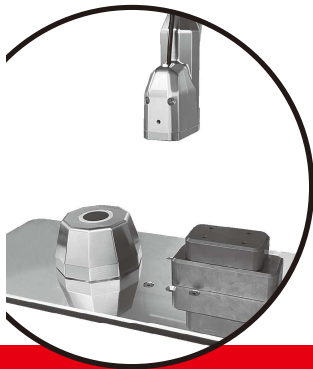
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あらゆる表面づくりを、最適な技術で。

装置販売から受託加工、加工プロセス提案まで

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■ エアブラスト

■ マイクロブラスト

■ バレル研磨

■ ブラシ研磨

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■ レーザピーニング

■ レーザクリーニング

■ レーザテクスチャリング

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Your Process, Digitally Reimagined

- **Build digital twins from manufacturing data**, enabling countless virtual experiments in a short time
- **Customize accordingly to your needs**, backed by extensive experience and deep process expertise

Single-Process Understanding and Optimization

Virtual World (Modeling, Prediction, Optimization)

- **Short time & Low cost**
- **Countless explorations**

Physics-Based Models / Realistic Simulations

- Simulations and analysis based on physical laws and mechanisms (White-box approach)

Data-Driven Models / AI-Assisted Optimization

- Prediction and condition exploration using experimental data (Black-box / Hybrid approach)

Digital Twin

Manufacturing Conditions (Inputs)

- Examples: temperature, pressure, speed, material composition, images, 3D shape data, etc.

Manufacturing Outcomes (Outputs)

- Examples: quality indicators, yield, defect rates, energy efficiency, etc.

Real World (Data from Experiments, Manufacturing, Observation)

- **Long time & High cost**
- **Limited trials**

Multi-Process Holistic Optimization

Meta Factory

Virtual Prototyping & Processes

Multi-process virtual space
Analyze processes with AI & simulations
Feedback to real processes

Digital Twin

Linked factory floor space
Sensors and equipment data
Refine the process with experience

Physical Factory

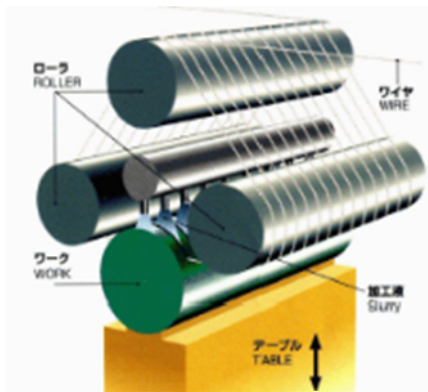
Real Processes & Equipment



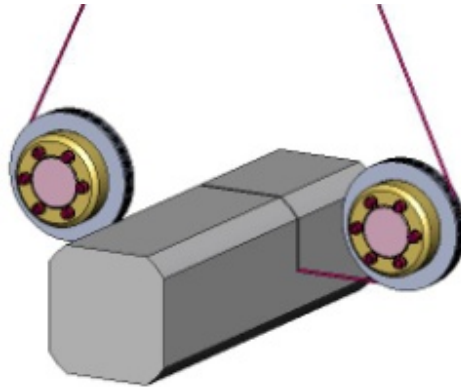
Introduction to Wire Saws

■ Wire Saw - A machine that cuts materials using a thin piano wire.

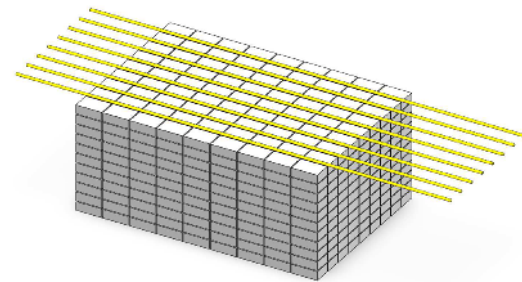
Multi-wire Cutting



Single-wire Cutting



Dicing Cutting



Multi-wire Saw



Single-wire Saw



Small-piece /
Wide-pitch Cutting

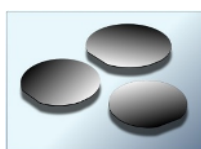
■ Yasunaga Wire Saw Lineup and Supported Work Sizes

Multi-wire Saw		Single-wire Saw		Small-piece / Wide-pitch Cutting
SW-2230D	SW-1730D	AM250	DW600S	UD150
Φ8 in × L300 mm	Φ6 in × L300 mm	W50 × H50 × L50 mm	W600 × H600 × L400 mm	W150 × H50 × L50 mm

■ Representative Materials



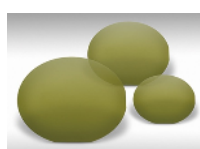
Si (Silicon)



GaAs
(Gallium Arsenide)



LT/LN
(Lithium Tantalate /
Lithium Niobate)



SiC
(Silicon Carbide)



GaN
(Gallium Nitride)



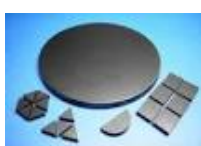
Quartz (Crystal)



Fused Quartz Glass



Sapphire



Ceramics



Sintered Materials



Neodymium
(Nd)



Iridium (Ir)



Thermoelectric
Materials



<http://www.fine-yasunaga.co.jp>

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for over 50 years, tailored to each customer's **materials and objectives.**