

ISAAT2021 Program

30 November (Tuesday), 2021

16:00	Registration			
18:00	Welcome reception			
20:00				

1 December (Wednesday), 2021

10:20	Opening Ceremony						
10:40	Plenary Talk 1						
11:20	Plenary Talk 2						
12:00	Lunch						
	(Room A)	(Room B)	(Room C)	(Room D)			
13:20	Advanced cutting technology		CMP and semiconductor wafer processing				
13:40							
14:00		Abrasive machining (1)		Additive manufacturing and related topics (1)			
14:20							
14:40							
15:00	Coffee Break						
15:20	Micro/nano-machining	Abrasive machining(2)	High speed and high-efficiency machining	Additive manufacturing and related topics (2)			
15:40							
16:00							
16:20							
16:40							
17:00							
18:00	ICAT annual assembly						

2 December (Thursday), 2021

9:20	Plenary Talk 3						
10:00	Plenary Talk 4						
10:40	Coffee Break						
11:00							
11:20	Ultrasonic machining (1)	Abrasive machining (3)	Finishing, lapping, polishing and deburring (1)	Beam processing and related topics			
11:40							
12:00							
13:20	Lunch						
13:40	Ultrasonic machining (2)	Abrasive machining (4)	Finishing, lapping, polishing and deburring (2)	Aspheric optics technologies			
14:00							
14:20							
14:40	Coffee Break						
15:00	In-process measurement, monitoring and metrology	Grinding wheel and abrasive grain technologies	Tribology in manufacturing	Machine tools and systems, tooling			
15:20				Surface integrity and materials characterization			
15:40							
16:00							
16:10	Poster Session (P001 ~ P012)						
16:50	Free Time						
18:00	Banquet						

3 December (Friday), 2021

9:00	Technical Tour (It is under consideration)			
15:00	Arrived at New Chitose Airport			

1 December (Wednesday), 2021

10:20

Opening Ceremony (Chairperson : Prof. H. Suzuki)		
Opening addresses	<i>Prof. Hideki Aoyama</i> <i>Prof. Junnichi Ikeno</i> <i>Prof. L. Zhou</i>	<i>ISAAT2021 Symposium chairman</i> <i>JSAT President</i> <i>ICAT Chairman</i>

10:40

General Session 1 (Chairperson : Prof. L. Zhou)		
Plenary Talks 1	G01	The Development of Abrasive and Smart Manufacturing Technology in Taiwan <i>Ph.D. Ta-Hsin Chou, Deputy Director, Industrial Technology Research Institute(ITRI), Taiwan</i>

11:20

Plenary Talks 2	G02	Pico-Precision & Hybrid Machining for High Value Manufacturing <i>Professor T. Kuriyagawa, Professor, Tohoku University, Japan</i>
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12:00

Lunch			
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(Room A)	(Room B)	(Room C)	(Room D)
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13:20

Advanced cutting technology Chairperson: Y. Kakinuma	Abrasive machining (1) Chairperson: T. Onishi	CMP and semiconductor wafer processing Chairperson: J. Shimizu	Additive manufacturing and related topics (1) Chairperson: H. Hidai
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A001 Effect of Vibration Behaviors on the Properties of Machined Surfaces Created by Low-frequency Vibration Cutting <i>Naoyuki Shibata, Yusuke Tanimoto, Hiroyuki Kodama, Kazuhito Ohashi</i>		C001 Study on photoelectrochemical mechanical polishing of n-type gallium nitride wafers under high voltage <i>Yuewen Sun, Renke Kang, Liwei Ou, Yan Bao, Xiaoguang Guo, Zhigang Dong</i>	
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13:40

A002 Precision cutting of CVD-SiC by PCD milling tool <i>Mirai Sakaida, Shun Higuchi, Akihiro Suzuki, Hirofumi Suzuki, Tatsuya Furuki</i>		C002 Study on the oxidation characteristics of reaction-sintered silicon carbide using vacuum Ar-based O ₂ plasma for plasma-assisted polishing <i>Tong Tao, Rongyan Sun, Kentaro Kawai, Kenta Arima, Kazuya Yamamura</i>	
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14:00

A003 Cutting Edge Machining and its Cutting Performance of PCD Tool Mixed a Coarse Boron Doped Diamond <i>Takuya Kobayashi, Manabu Iwai, Fumihiro Uchiyama, Ryota Uchiyama, Peter Chen, Bear Lin, Shinichi Ninomiya</i>	B003 Comparisons Between Straight oil and Water-based Fluid in Vitriified CBN Grinding of Hardened Steel <i>Zhongde Shi, John Agapiou, Helmi Attia</i>	C003 Optimization of polishing parameters to make the polishing amount distribution uniform in slurryless electrochemical mechanical polishing of 4 inch 4H-SiC wafers <i>Haiyang Gu, Xu Yang, Xiaozhe Yang, Kentaro Kawai, Kenta Arima, Kazuya Yamamura</i>	D003 Evaluation of wettability of shot-blasted metal materials by surface free energy theory <i>Koichiro Nambu, Fumiya Sano, Masahiro Okumiya, Yusuke Uchiyumi</i>
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14:20

A004 Improvement of Polishing Motion Using Internal Servo Information in Human Co-Operative Robot System <i>Takamasa Yamamoto, Ryo Matsuda, Masatoshi Shindou, Toshiki Hirogaki, Eiichi Aoyama</i>	B004 A novel oscillating heat pipe grinding wheel to avoid burn-out in eco-benign grinding <i>Ning Qian, Yucan Fu, Fan Jiang, Jiuhua Xu</i>	C004 Improvement of material removal rate of slurryless electrochemical mechanical polishing by introducing shallow strained layer on 4H-SiC (0001) surface <i>Xu Yang, Xiaozhe Yang, Haiyang Gu, Kentaro Kawai, Kenta Arima, Kazuya Yamamura</i>	D004 Investigation of Surface Finishing Performance for Additive Manufactured Titanium Alloy by Combined Process between Abrasive Blasting and Electron Beam Polishing <i>Toshiya Tsuji, Norihito Shibuya, Akira Okada, Togo Shinonaga, Hiroya Kobayashi</i>
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14:40

A005 Cutting Process of Aluminum Alloy with Corner Rounding End Mill <i>Shoichi Tamura, Takashi Matsumura</i>	B005 A fundamental investigation on the material removal process in fixed-abrasive CMP of Si wafer <i>Gengzhuo Li, Yongbo Wu</i>	C005 Water dissolution finishing for potassium dihydrogen phosphate (KDP) crystal without abrasive using sodium alginate gel film <i>Yun Shen, Jing Lu, Guangqiu Hu, Xiaobin Lv</i>	D005 Investigation of Cutting Characteristics and Suggestion of Cutting Efficiency Improving Method for Additive Manufactured Maraging Steel <i>Atsushi Ogane, Tatsuya Furuki, Hiroki Ninomiya, Hiroyuki Kousaka</i>
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15:00

Coffee Break			
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	Micro/nano-machining Chairperson: H. Suzuki	Abrasive machining(2) Chairperson: M. Iwai	High speed and high-efficiency machining Chairperson: H. Kodama	Additive manufacturing and related topics (2) Chairperson: T. Furuki
15:20	A006 Fundamental investigation of nanopore generation in yttria-stabilized zirconia by femtosecond pulsed laser irradiation <i>Yuka Yamamuro, Tomotaka Shimoyama, Jiwang Yan</i>	B006 Ductile Grinding of Brittle Materials <i>Han Huang</i>	C006 Grinding speed-dependent fiber breakage in grinding SiC/SiC ceramic matrix composite <i>Jingfei Yin, Jiuhua Xu, Wenfeng Ding, Honghua Su</i>	D006 In-process measurement of Melt Pool Temperature for High-Quality Modeling in Directed Energy Deposition <i>Tepei Shimada, Hideki Aoyama, Masahiro Ueda, Kazuo Yamazaki</i>
15:40	A007 An Investigation into Material Removal Characteristic of Synergy Machining with Single Grain and Laser <i>Yi He, Guijian Xiao, Shuai Liu, Shayu Song, Gang Liu, Shengwang Zhu</i>	B007 Brittle-to-ductile transition mechanism of single crystal silicon induced by nanoscratching <i>Xuliang Li, Shuiquan Huang, Han Huang</i>	C007 Machining performance of grooving of ZrO ₂ ceramics by tilted helical grinding <i>Chen Deng, Qiang Wang, Te Zhao, Yongbo Wu</i>	D007 High-efficiency and High-quality Modeling using Directed Energy Deposition Based on Real-time Control of Modeling Paths <i>Erika Okamoto, Hideki Aoyama, Kengo Aizawa, Masahiro Ueda, Kazuo Yamazaki</i>
16:00	A008 Micro Grinding of Acrylic Glass for Submerged Solar Panel using a Monocrystalline Diamond Tool <i>Otoya Nakajima, Akinori Yui, Tatsuki Ikari</i>	B008 Optimization of CBN grinding process for Ni-based functional graded superalloy formed by laser metal deposition <i>Bo Xin, Xiao Qi Wang, Ding Kun Xu, Jiang Yu Ren, Yadong Gong</i>	C008 High-Speed Milling Characteristic of Ti and Ti-6Al-4V using TiAlN Coated Carbide Radius End Mill <i>Therdsak Jaingam, Chiaki Kaminaga, Takekazu Sawa, Masahiro Anzai</i>	D008 Simulation of Shrinkage Errors in Processes of Selective Laser Sintering with a Milling Function <i>Atsushi Ozono, Hideki Aoyama, Ichiro Araie</i>
16:20	A009 Study on the micromachining of binderless cemented carbides using short pulsed UV lasers <i>Kakeru Koiso, Kenji Suzuki, Akinori Yui</i>	B009 Performance of Electroplated Diamond Wheels in Grinding Titanium Metal Matrix Composites <i>Cecile Escaich, Zhongde Shi, Luc Baron, Marek Balazinski</i>	C009 High-Speed Milling Characteristics of Co-Cr-Mo using TiAlN Coated Carbide Radius End Mill <i>Therdsak Jaingam, Fumiya Iwasaki, Chihiro Kamiki, Takekazu Sawa, Masahiro Anzai</i>	D009 Control of the Porosity and Its Orientation of Bio-implants adopting Metal Additive Manufacturing <i>Masayoshi Mizutani, Shinji Ishibashi, Masaki Tsukuda, Takumi Mizoi, Masataka Chuzenji, Keita Shimada, Tsunemoto Kuriyagawa</i>
16:40	A010 Fundamental investigation of ultraprecision aspheric machining with straight cutting-edge diamond tools <i>Linhe Sun, Aibo Wang, Jiang Zeng, Guiming Shao, Yongbo Wu</i>		C010 High-Speed Milling Characteristic of the Inconel 625 using TiAlN Coated Carbide Radius End Mill <i>Therdsak Jaingam, Kouta Ebihara, Takekazu Sawa, Masahiro Anzai</i>	
17:00				
18:00	ICAT annual assembly			

2 December (Thursday), 2021

General Session 2 (Chairperson : Prof. H. Aoyama)				
9:20	Plenary Talks 3	G03	Diamond tool micro-milling of hard and brittle materials <i>Dr. Kazutoshi Katahira, Senior research scientist, RIKEN, Japan</i>	
10:00	Plenary Talks 4	G04	State-of-the-art on abrasive technology in China <i>Ph.D. Zhigang Dong, Professor, Dalian University of Technology, China</i>	
10:40	Coffee Break			
	Ultrasonic machining (1)	Abrasive machining (3)	Finishing, lapping, polishing and deburring (1)	Beam processing and related topics
	Chairperson: M. Nomura	Chairperson: T. Sawa	Chairperson: Y. Hashimoto	Chairperson: J. Yan
11:00	A011 A study on ultrasonic milling properties of cobalt alloy <i>Keisuke Hara, Kyosuke Taguchi, Hiromi Isobe</i>	B011 High efficiency dry grinding of CFRP using in-process cleaning of wheel surface by dry ice jet <i>Kazushi Yamasaki, Shingo Okazaki, Hiroyuki Kodama, Hiroyuki Yoden, Kazuhito Ohashi</i>	C011 Consideration on suppression of grinding stone components adhesion in dry polishing with the aid of surface modification by fluorine-based plasma <i>Rongyan Sun, Tong Tao, Kentaro Kawai, Kenta Arima, Kazuya Yamamura</i>	D011 Micro Raman Tomographic Imaging on Laser Beam Internal Machining into Sapphire <i>Tepei Onuki, Hirotaka Ojima, Jun Shimizu, Libo Zhou</i>
11:20	A012 Machining of electroless Ni-P plated micro lens alloy mold by ultrasonic vibration assisted indentation <i>Tsunehiro Nakagawa, Akira Goto, Tatsuhiro Sakai, Hirofumi Suzuki, Akinori Yui</i>	B012 Estimation of Grinding Stock in Cylindrical Plunge Grinding <i>Takashi Onishi, Yuki Murata, Moriaki Sakakura, Kazuhito Ohashi</i>	C012 Feasibility study on high efficiency and high quality internal polishing of capillary tubes using magnetic compound fluid (MCF) slurry <i>Yufeng Xue, Wentao Zhang, Yali Wang, Shibo Zhang, Yongbo Wu</i>	D012 Shape of the ultrashort-pulsed laser-modified region in diamonds <i>Daijiro Tokunaga, Hirofumi Hidai, Souta Matsusaka, Akira Chiba, Takashige Oomatsu, Noboru Morita</i>
11:40	A013 Composite effect of laser shot peening and ultrasonic surface rolling on surface integrity of ultra-high strength steel <i>Xiaosheng Luan, Zhiqiang Liang, Wenxiang Zhao, Xibin Wang, Tianfeng Zhou, Yuchao Du, Yue Ma, Yifan Chen</i>	B013 Experimental study on grinding force of CFRP cylindrical shell in end surface grinding <i>Junchao Tian, Yan Bao, Zhenjia Wang, Zhigang Dong, Xianglong Zhu, Renke Kang</i>	C013 Fundamental study on ultra-precision polishing based on the combined effect of magnetorheology and dielectrophoresis <i>Yali Wang, Ming Feng, Yufeng Xue, Yongbo Wu</i>	D013 Method for Simulation of Femtosecond Laser Ablation Based on Modeling of Physical Phenomena <i>Shusuke Hironaka, Hideki Aoyama, Kazuo Yamazaki</i>
12:00	Lunch			
	Ultrasonic machining (2)	Abrasive machining (4)	Finishing, lapping, polishing and deburring (2)	Aspheric optics technologies
	Chairperson: K. Hara	Chairperson: N. Yoshihara	Chairperson: K. Yamamura	Chairperson: T. Matsumura
13:20	A014 Experimental Study on Micro-drilling of Zirconia Ceramics with the Assistance of Ultrasonic Vibration by Tungsten Steel Drill <i>Te Zhao, Qiang Wang, Yongbo Wu</i>	B014 Basic Study on Reaction Induced Slurry Assisted Grinding for Quartz Glass <i>Tappei Kawasato, Kazuhisa Hamazono, Masahiko Fukuta, Katsutoshi Tanaka, Mikinori Nagano, Hidebumi Kato, Yasuhiro Kakinuma</i>	C014 Visualization of tool behavior in three dimensional polishing <i>Takaho Miyata, Michio Uneda, Kyosuke Tenkou, Kazutoshi Hotta, Hitoshi Morinaga</i>	D014 Multi-Signal Monitoring System for Glass Lens Centering Process <i>Kai-Hong Yu, Shiau-Cheng Shiu, Ta-Hsin Chou, Chun-Wei Liu</i>
13:40	A015 The study of transmission characteristics of the Magnetically Coupled Resonant Wireless Power Transfer Used in Rotary Ultrasonic Machining Process <i>Xianpeng Qiao, Minghan Chen, Yongbo Wu</i>	B015 Optimization of Nano-topography Distribution by Compensation Grinding <i>Nobuhito Yoshihara, Yuta Ebina, Masahiro Mizuno</i>	C015 Improvement of Finishing Speed by Using Side Cover Plates in Gyro Finishing <i>Yugo Nakayama, Yohei Hashimoto, Tatsuaki Furumoto, Mitsugu Yamaguchi, Tomohiro Koyano, Akira Hosokawa</i>	D015 Response Parametric Optimisation of Abrasive Waterjet Milling of RB-SiC <i>Hongxing Deng, Peng Yao, Xianpeng Zhang, Chuanzhen Huang, Hongtao Zhu</i>
14:00	A016 Effect of plasma voltage on properties of plasma-induced oxide layer in ultrasonic/plasma oxidation hybrid assisted grinding of titanium alloy <i>Hanqiang Wu, Yuhan Chen, Sisi Li, Qiang Wang, Yongbo Wu</i>		C016 Observation of slurry behavior between workpiece and upper platen in Double-sided Lapping <i>Tomoya Sasaki, Yohei Hashimoto, Tatsuaki Furumoto, Mitsugu Yamaguchi, Tomohiro Koyano, Akira Hosokawa</i>	D016 Glass press molding using stainless steel mold with low-temperature plasma nitriding treatment <i>Sidi Huang, Hao Duan, Natsuki Yonezawa, Shinya Morita, Takuya Hosobata, Yutaka Yamagata</i>
14:20	Coffee Break			

14:40	In-process measurement, monitoring and metrology Chairperson: Y. Takaya	Grinding wheel and abrasive grain technologies Chairperson: T. Yamada	Tribology in manufacturing Chairperson: S. Morita	Machine tools and systems, tooling Chairperson: A. Yui
	A017 Development of the anomaly detection system for manufacturing based on LSTM Encoder-Decoder Model <i>Taisuke Oshida, Tomohiro Murakoshi, Libo Zhou, Hirotaka Ojima, Teppei Onuki, Jun Shimizu</i>	B017 Investigation on the effects of abrasive size of high-shear and low-pressure grinding <i>Bing Liu, Yebing Tian, Jinguo Han, Zhiqiang Gu, Xintao Hu</i>	C017 The effect of water-based nanolubrication on friction during hot rolling of microalloyed steel <i>Hui Wu, Shuiquan Huang, Zhao Xing, Sihai Jiao, Han Huang, Zhengyi Jiang</i>	D017 Support System for Deciding Cutting Condition in Mold Steel Machining Supported by Data-Mining Methods <i>Daisuke Kita, Hiroyuki Kodama, Ryutaro Kondo, Satoru Koizumi, Ryogo Yoshimura, Masami Iwata, Akira Tokuyama, Kazuhito Ohashi</i>
15:00	A018 Investigation on the Characteristic of Vibration Signal form Axial/Radial Grinding Wheel in Sapphire Wafer Grinding Process <i>Yu-Kun Lin, Bing-Fei Wu, Chia-Jen Ting, Ta-Hsin Chou</i>	B018 Influence on Grinding Force Distribution in Setting Depth of Cut Variations of Cemented Carbide with Vertical Face Grinding <i>Ryo Komatsubara, Takanori Fujiwara, Takashi Tsujino, Hiroyuki Kodama, Takashi Onishi, Kazuhito Ohashi</i>	C018 Tribological characterisation of aluminium-copper composite material in micro deep drawing under the lubrication condition of nanolubricant <i>Fanghui Jia, Hui Wu, Hamidreza Kamali, Zhengyi Jiang</i>	
15:20	A019 Non-contact observation of Tooth Profile Error of Involute Spur Gears by Using Autocollimator <i>Fuga Yamamoto, Hayato Yoshioka, Shingo Tajima</i>	B019 Effect of Viscoelasticity of Thermoplastic Resin Bonded Wheel on Ultra-Precision Grinding of SiC Wafers <i>Haruka Sakamoto, Yoji Fukushima, Kozo Sakai, Hiroyuki Kodama, Kazuhito Ohashi</i>	C019 Molecular Dynamics Simulation of Localized Hydrostatic Pressure-Assisted Cutting with a Rolling Element <i>Jun Shimizu, Takeyuki Yamamoto, Hirotaka Ojima, Teppei Onuki, Libo Zhou</i>	Surface integrity and materials characterization Chairperson: Y. Kameyama D019 The Mechanics Characterization of Cutting Metal-Matrix Composites <i>Liangchi Zhang, Yang He, Xin Zhang, Wenjun Lu, Yahui Xue, Zhenzhong Jia</i>
15:40		B020 Investigation on the grinding performance of laser micro-structured brazed diamond grinding tools with uniformly-distributed grains <i>Zhen Zhang, Quanli Zhang, Wenfeng Ding, Yucan Fu, Jiuhua Xu</i>	C020 Friction Characteristics of Metal Surfaces Textured by Vibration-assisted Cutting under Lubricated Environment <i>Daiki Hagio, Takeyuki Yamamoto, Jun Shimizu, Libo Zhou, Teppei Onuki, Hirotaka Ojima</i>	D020 Morphology Measurements by AFM Tapping without Causing Surface Damage: a Phase Lag Characterization <i>Yang He, Liangchi Zhang</i>
16:10	Poster Session (P001~P012)			
16:50	Free Time			
18:00	Banquet			
20:00	Banquet			

Poster Session (P001~P012)

P001	Study on ultrasonic vibration assisted drilling of AISI 316 <i>Kyosuke TAGUCHI, Yamato MATSUHASHI, Yoshihiko NAGAHATA, Keisuke HARA, Nobuhito Yoshihara, Masahiro Mizuno</i>
P002	Visualization of Dynamically Changing Cutting Force under Ultrasonic Cutting Condition <i>Hiromi Isobe, Keisuke Hara, Akira Sakurada, Naofumi Tsuji, Kazuto Miyawaki</i>
P003	An ultrasonic orthopedic scalpel based on a sandwich piezoelectric transducer <i>Shibo Zhang, Zhirui Chen, Chao Liu, Yongbo Wu</i>
P004	Effects of α -cellulose supply on the working life of MCF slurry in MCF polishing <i>Mitsuyoshi Nomura, Yuta Nonaka, Tatsuya Fujii, Tsunehisa Suzuki, Yongbo Wu</i>
P005	Glass material parameter analysis for glass press mold simulation code V-Glace <i>Yutaka Yamagata, Kohei Ogawa, Takashi Kond, o Shinya Morita, Eiji Ishiyama, Keiji Nakabayashi, Hiroyoshi Funada</i>
P006	The grinding performance of a newly developed soft abrasive grinding wheel for silicon wafers during wet grinding process <i>Shang Gao, Jinxing Huang, Yu Zhang, Zhigang Dong, Renke Kang</i>
P007	Quantitative Evaluation of Dressing Condition and Grinding Characteristics using Dressing Resistance during Dressing <i>Gen Uchida, Takazo Yamada, Kohichi Miura, Hwa-Soo Lee</i>
P008	Improvement of mechanical properties for polyimide resin-bonded diamond grinding tools with a high concentration of carbon nanotubes <i>Shota Sasaki, Tsunehisa Suzuki, Tatsuya Fujii, Mitsuyoshi Nomura, Takamichi Izunome, Yoshikazu Otsuka</i>
P009	Fabrication of well-dispersed carbon nanotube/phenolic resin composites for diamond grinding tools <i>Kosumo Sasaki, Tsunehisa Suzuki, Tatsuya Fujii, Mitsuyoshi Nomura, Ryo Ito</i>
P010	Effect of LD processing on cutting of cemented carbide tools <i>Yayoi Tanaka, Hisashi Sato, Osamu Eryu</i>
P011	Proposal of new chip collecting system in cutting of carbon fiber reinforced plastics <i>Naoki Takahashi, Jumpei Kusuyama, Yohichi Nakao</i>
P012	Numerical research on temperature field of grinding γ -TiAl intermetallic compounds by oscillating heat pipe grinding wheel <i>Fan Jiang, Yucan Fu, Ning Qian</i>