

International Forum on Micro Manufacturing 2010 (IFMM'10)

Day I - Thursday 21 October 2010

9:00 ~ 9:30	Opening Ceremony / International Conference Room		Kuniaki Dohda / Nagoya Institute of Technology 【General Chair】
9:30 ~ 10:30	Plenary Lecture	BIOMIMETIC MULTI-LENGTH SCALE MANUFACTURING IN CARBON Prof. Marc J. Madou / University of California at Irvine (UCI)	

	Large Conference Room 【Room №1】	Large Conference Room 【Room №2】	Large Conference Room 【Room №3】
	Micro Forming I	Micro-manufacturing Applications I	Micro Machining I
Time	<i>Chair: Danno Atsushi / Singapore Institute of Manufacturing Technology</i> <i>Co-chair:</i>	<i>Chair: Ming Yang / Tokyo Metropolitan University</i> <i>Co-chair:</i>	<i>Chair: Shinsuke Matsui / Nippon Telegraph and Telephone Corporation</i> <i>Co-chair:</i>
10:50 ~ 11:10	【IFMM10_001】 THE INFLUENCE OF MICROSTRUCTURE ON LIMITATION OF MICRO DEEP DRAWING PROCESS You-Min Huang*, Yi-Wei Tsai <i>National Taiwan University of Science and Technology</i>	【IFMM10_006】 FLEXIBLE MULTI-FUNCTIONAL MICRO SENSORS FOR IN-SITU DIAGNOSIS OF PROTON EXCHANGE MEMBRANE FUEL CELLS Chi-Yuan Lee*, Chienliu Chang, Wei-Jung Hsieh, Wei-Yuan Fan, Chih-Ping Chang <i>Yuan Ze University</i>	【IFMM10_035】 PARALLEL ELECTRODE TOOL ARRAY BY TNL-ELECTROCHEMICAL HYBRID PROCESS Sun Ho Kim ¹ , Noboru Morita ² , Deug Woo Lee ³ , Jeong Woo Park ^{1*} ¹ Chosun University, ² University of Toyama, ³ Pusan National University
11:10 ~ 11:30	【IFMM10_009】 EFFECT OF PUNCH SIZE AND ANNEALING ON THE PROGRESSIVE FORMING OF MICRO-PIN FROM A SHEET METAL S.C.V. Lim*, Danno Atsushi, M.Q. Chew <i>Singapore Institute of Manufacturing Technology</i>	【IFMM10_007】 FABRICATION OF ARRAY MICRO TEMPERATURE SENSORS IN A STAINLESS STEEL-BASED MICRO REFORMER Chi-Yuan Lee*, Chienliu Chang, Chen-Hen Lin, Yi-Man Lo <i>Yuan Ze University</i>	【IFMM10_050】 A CUTTING METHOD OF A SOFT MATERIAL TO MAKE THERMALLY CONDUCTIVE SHEET Rei Yamamoto ^{1*} , Noboru Morita ² , Katsunori Yamaoka ² , Michiaki Yajima ¹ ¹ Hitachi Chemical Co.,Ltd., ² University of Toyama
11:30 ~ 11:50	【IFMM10_010】 A STUDY ON COLD FORGING PROCESS FOR MICRO GEAR WITH CIRCULAR SHAFT I-Chen Lin*, Hsin-Te Wang, Chih-Hao Lin <i>Metal Industries Research & Development Centre</i>	【IFMM10_008】 USING FLEXIBLE MICRO TEMPERATURE SENSOR TO DIADNOSIS IN SITU TEMPERATURE AND SIMULATION FOR PROTON EXCHANGE MEMBRANE FUEL CELL Chi-Yuan Lee ^{1*} , Fang-Bor Weng ¹ , Chin-Hsien Cheng ¹ , Huan-Ruei Shiu ² , Shiqah-Ping Jung ² , Wen-Chen Chang ² , Pin-Cheng Chan ¹ , Wen-Ting Chen ¹ , Chung-Ju Lee ¹ ¹ Yuan Ze University, ² Industrial Technology Research Institute	【IFMM10_051】 DEVELOPMENT OF SMALL-DIAMETER DRILLS WITH MICRO/NANOMETER-SCALE TEXTURES Noritaka Kawasegi ^{1*} , Hiroshi Sugimori ¹ , Noboru Morita ² , Isao Hori ³ ¹ Toyama Industrial Technology Center, ² University of Toyama, ³ NACHI-FUJIKOSHI CORP
11:50 ~ 12:10	【IFMM10_015】 DEVELOPMENT OF MICRO PIERCING PROCESS USING PRESS COINING AND CHEMICAL ETCHING Kenji Hirota*, Hiroaki Cho <i>Kyushu Institute of Technology</i>	【IFMM10_028】 MANUFACTURING OF MICRO THIN-WALLED PARTS BY MOLTEN METAL DROPLET Yanpu Chao, Lehua Qi*, Jiming Zhou, Fang Yang <i>Northwestern Polytechnic University</i>	【IFMM10_052】 EFFECT OF SOFT CERAMIC-MIXTURE CUTTING OIL WHEN MICRO DRILLING Ryoichi Arai ^{1*} , Noboru Morita ² , Takahito Nishi ² ¹ Nagano Prefecture General Industrial Technology Center, ² University of Toyama

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	Large Conference Room 【Room №1】	Large Conference Room 【Room №2】	Large Conference Room 【Room №3】
	Micro Forming II	Micro-manufacturing Applications II	Micro Machining II
Time	<i>Chair: Kenji Hirota / Kyushu Institute of Technology</i> <i>Co-chair:</i>	<i>Chair: Yasuo Marumo / Kumamoto University</i> <i>Co-chair:</i>	<i>Chair: Noboru Morita / University of Toyama</i> <i>Co-chair:</i>
13:40 ~ 14:00	【IFMM10_017】 THE DESIGN AND INJECTION MOLDING OF FRESNEL LENS Ying-Tsung Jeng, Yuen-Hsun Tsai*, Jui-Ting Chien, Wei-Ren Chen, Ming-Yun Chen <i>Metal Industries Research & Development Centre (MIRDC)</i>	【IFMM10_020】 IMPROVEMENT OF POSITIONING PRECISION IN MICRO-ASSEMBLY SYSTEM BY UTILIZING THE SPATIAL ERROR COMPENSATION METHOD Po-Wen Hsueh, Yung-Chen Wu, Chun-Wei Huang Cheng-Yen Chen* <i>Metal Industries Research & Development Centre (MIRDC)</i>	【IFMM10_021】 FABRICATION OF METALLIC WIRE GRATING BY FEMTOSECOND LASER ABLATION Ming-Chieh Cheng*, Cheng-Kuo Sung <i>National Tsing Hua University</i>
14:00 ~ 14:20	【IFMM10_018】 THE INTERFERENCE OF COLD FORGING ON MICRO GEARS Chin-Yu Wang ^{1*} , Hsin-Te Wang ² ¹ <i>Cheng Shiu University</i> ² <i>Metal Industries Research and Development Centre</i>	【IFMM10_048】 NANOIMPRINT OF Pt-BASED METALLIC GLASS OF PITCH 25 NM NANO-DOTS ARRAY WITH DIES FABRICATED BY FIB-CVD & RIE PROCESS Yasuyuki Fukuda*, Yasunori Saotome, Akihisa Inoue <i>Tohoku University</i>	【IFMM10_026】 A NEW METHOD FOR MACHINING AXIAL SYMMETRIC/ASYMMETRIC PARTS WITH EXPERIMENT VALIDATION Xianshuai Chen*, R. Du <i>The Chinese University of Hong Kong</i>
14:20 ~ 14:40	【IFMM10_023】 MICRO DEEP DRAWABILITY OF ULTRA-THIN ROLLED PHOSPHOR BRONZE FOIL Tetsuhide Shimizu ^{1*} , Masahiro Ogawa ¹ , Kuniyoshi Ito ² Ken-ichi Manabe ¹ ¹ <i>Tokyo Metropolitan University</i> , ² <i>Microfabrication Laboratory Llc</i>	【IFMM10_054】 DEVELOPMENT OF A MICRO TOOL POSITIONING ERROR MEASUREMENT AND AUTO-COMPENSATION SYSTEM Shih-Ming Wang*, Ji-Jun Lin <i>Chung Yuan Christian University</i>	【IFMM10_030】 MICRO TAPER MACHINING OF OPTICAL FIBER ENDS FOR ON-SITE ASSEMBLE CONNECTOR Shinsuke Matsui ^{1*} , Shuichiro Asakawa ¹ , Yoshiteru Abe ¹ Shigeru Hosono ¹ , Junya Kobayashi ¹ , Hidenobu Hirota ¹ Ryo Nagase ² , Masaru Kobayashi ³ ¹ <i>Nippon Telegraph and Telephone Corporation</i> ² <i>Chiba Institute of Technology</i> ³ <i>NTT Advanced Technology Corporation</i>

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	Large Conference Room 【Room №1】	Large Conference Room 【Room №2】	Large Conference Room 【Room №3】
	Micro Forming III	Tribology and Surface Engineering I	Micro Machining III
Time	<p><i>Chair: Isao Kuboki / Kogakuin University</i></p> <p><i>Co-chair:</i></p>	<p><i>Chair: Shih-Ming Wang / Chung Yuan Christian University</i></p> <p><i>Co-chair:</i></p>	<p><i>Chair: Satoshi Wada / RIKEN, MEGAOPTO Co., Ltd.</i></p> <p><i>Co-chair:</i></p>
15:00 ~ 15:20	<p>【IFMM10_024】</p> <p>INFLUENCE OF FRICTION BEHAVIER ON FORMING OF MICRO-PARTS BY FORWARD-BACKWARD EXTRUSION OF 6063 ALUMINUM ALLOY</p> <p>Norio Takatsuji¹, Syohei Hosokawa^{1*}, Kuniaki Dohda², Takehiko Makino²</p> <p>¹University of Toyama, ²Nagoya Institute of Technology</p>	<p>【IFMM10_031】</p> <p>EVALUATION OF TRIBOLOGICAL CHARACTERISTICS FOR MICRO DIES</p> <p>Ming Yang^{1*}, Yu Kimura¹, Kazuo Morikawa²</p> <p>¹Tokyo Metropolitan University</p> <p>²Tokyo Metropolitan Industry Research Institute</p>	<p>【IFMM10_032】</p> <p>MICRO CUTTING OF ULTRA FINE GRAIN MATERIALS</p> <p>Takafumi Komatsu^{1*}, Takashi Matsumura²</p> <p>Shiro Torizuka³</p> <p>¹Komatsuseiki Kosakusho Co., Ltd ; ²Tokyo Denki University</p> <p>³National Institute for Material Science</p>
15:20 ~ 15:40	<p>【IFMM10_027】</p> <p>RESEARCH OF SIZE EFFECT ON THE MICRO-EXTRUSION FORMING OF BULK METALLIC GLASS</p> <p>X.Wu, J.J.Li*, L.Liu, H.M.Zhou</p> <p>Huazhong University of Sci-ence and Technology</p>	<p>【IFMM10_040】</p> <p>CHARACTERIZATION AND MODELING OF HYDRODYNAMIC NANOPOLISHING PROCESS</p> <p>Rinku Mittal, Prashant Kumar, Ramesh K. Singh, Suhas S. Joshi*</p> <p>Indian Institute of Technology Bombay</p>	<p>【IFMM10_034】</p> <p>STIFFNESS EVALUATION OF A DOUBLE ARCH-TYPE DESK-TOP MACHINE TOOL</p> <p>Sungcheul Lee*, Hyeon-Hwa Lee, Seung-Kook Ro, Jong-Kweon Park</p> <p>Korea Institute of Machinery and Materials(KIMM)</p>
15:40 ~ 16:00	<p>【IFMM10_029】</p> <p>EXPERIMENTAL INVESTIGATION OF GEAR-MICROEXTRUSION AND THE ANALYSIS OF FORMING LOAD BY FEM</p> <p>Zhou Jiming*, Yang Fang, Fu Jiawei, Qi Lehua</p> <p>Northwestern Polytechnical University</p>	<p>【IFMM10_057】</p> <p>TRIBOLOGICAL CONDITIONS IN THE CONTACT INTERFACE BETWEEN PROBE AND COATED FILM IN WAFER TEST OF ICS</p> <p>Naohiro Nakagawa¹, Atsuhisa Ushizu¹, Yasuo Marumo^{1*}</p> <p>Liqun Ruan¹, Ryuta Haraguchi¹, Keisuke Yamaguchi¹</p> <p>Mitsuhiro Moriyama², Hiroyuki Saiki¹</p> <p>¹Kumamoto University, ²Tokyo Cathode Laboratory, Ltd.</p>	<p>【IFMM10_062】</p> <p>MICRO-MACHINING USING MULTI-TIP FOR IMPROVEMENT OF TRIBOLOGICAL CHARACTERISTICS</p> <p>Soo-Chang Choi¹, Sang-Min Lee¹, Jin-Geun Kim¹, Jeong-Woo Park², Deug-Woo Lee^{1*}</p> <p>¹Pusan national University, ²Chosun University</p>

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	Large Conference Room [Room №1]	Large Conference Room [Room №2]	Large Conference Room [Room №3]
	Micro Forming IV	Tribology and Surface Engineering II	Micro-EDM and others
Time	<i>Chair: Takehiko Makino / Nagoya Institute of Technology</i> <i>Co-chair:</i>	<i>Chair: Suhas S. Joshi / Indian Institute of Technology Bombay</i> <i>Co-chair:</i>	<i>Chair: Hitoshi Ohmori / RIKEN</i> <i>Co-chair:</i>
16:20 ~ 16:40	【IFMM10_041】 FORM ROLLING PROCESS FOR DECREASING AND INCREASING DIAMETER OF MICRODIAMETER LONG RODS MADE OF DIFFICULT-TO-SHAPE MATERIALS Isao Kuboki* <i>Kogakuin University</i>	【IFMM10_039】 EFFECT OF TEMPERATURE AND HUMIDITY TO WEAR OF BALL LINEAR GUIDEWAY IN DRY FRICTION CONDITION Nguyen Thi Ngoc Huyen* ,Pham Van Hung <i>Hanoi University of Science and Technology</i>	【IFMM10_004】 INJECTION MOLDING OF ZRO ₂ CERAMIC MICRO-STRUCTURED PART AND ITS APPLICATION Zhang Kaifeng* , Lu Zhen, Wang Changrui <i>Harbin Institute of Technology</i>
16:40 ~ 17:00	【IFMM10_043】 EFFECT OF GRAIN SIZE ON SPRINGBACK OF SEAMLESS STAINLESS MICROTUBE PRESS BENDING PROCESS Cho-Pei Jiang ^{1*} , Chang-Cheng Chen ² ¹ <i>National Formosa University</i> ² <i>Technology and Science Institute of Northern Taiwan</i>	【IFMM10_037】 EFFECT OF AL ₂ O ₃ NANOPARTICLE ON RHEOLOGICAL PROPERTIES OF OIL Hung Pham Van, Manh Toan Nguyen*, Thuy Duong Nguyen <i>Hanoi University of Technology</i>	【IFMM10_013】 PULSE ELECTROCHEMICAL MACHINING APPLICATION ON THE MINIATURE FLUID DYNAMIC BEARING GROOVES FABRICATION Wen-Chieh Wu*, Chen-Hui Chang, Kuan-Chih Chiu, Da-Yu Lin, Jung-Chou Hung, Yin Chuang <i>Metal Industries Research Development Centre(MIRDC)</i>
17:00 ~ 17:20	【IFMM10_059】 EFFECT OF STRAIN RATE ON THE FORMING LIMIT DIAGRAM OF THIN ALUMINUM FOIL Zhenyu Hu*, Hanna Wielage, Frank Vollertsen <i>BIAS Bremern Institut für Angewandte Strahltechnik GmbH</i>	【IFMM10_045】 EFFECT OF AL ₂ O ₃ NANOPARTICLE ON HYDRODYNAMIC PRESSURE PROFILE OF HYDRODYNAMIC JOURNAL BEARING Manh Toan Nguyen*, Hung Pham Van <i>Hanoi University of Technology</i>	【IFMM10_060】 INVESTIGATION OF DRY MICRO-EDM: SINGLE PULSE DISCHARGE ON SILICON S. Kanmani Subbu, J. Ramkumar*, S. Dhamodaran <i>Indian Institute of Technology Kanpur</i>
17:20 ~ 17:40	【IFMM10_047】 WORLD SMALLEST MICRO GEARED MOTOR MADE OF METALLIC GLASSES Yasunori Saotome ^{1*} , Yukiharu Shimizu ² , Kenji Amiya ¹ , Kazuhiko Kita ³ , Nobuyuki Nishiyama ³ , Akihisa Inoue ¹ ¹ <i>Tohoku University</i> , ² <i>Namiki Precision Jewel Co. Ltd.</i> , ³ <i>RIMCOF Tohoku Univ. Laboratory</i>	【IFMM10_012】 IMPROVED LIGHT OUTPUT POWER OF GAN-BASED LED BY SURFACE ROUGHNESS ON IMPRINTING MICROSTRUCTURE Yeeu-Chang Lee ^{1*} , Ching-Huai Ni ¹ , Chih-Yeeu Chen ¹ , Yu-Chieh Huang ² , Wei-Kai Wang ² , Chi-Shen Lee ² ¹ <i>Chung Yuan Christian University</i> , ² <i>Huga Optotech Inc</i>	【IFMM10_046】 COMPARATIVE ASSESSMET OF THE LASER IDUCED PLASMA MICRO-MACHIG (LIP-MM) AD THE μ-EDM PROCESS K. Pallav ^{1*} , J. Ramkumar ² , Nagahanumaiah ³ , K.F. Ehmann ¹ ¹ <i>Northwestern University</i> , ² <i>Indian Institute of Technology</i> ³ <i>Central Mechanical Engineering Research Institute</i>

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Day II - Friday 22 October 2010

	Large Conference Room 【Room №1】	Large Conference Room 【Room №2】	Large Conference Room 【Room №3】
	Micro Forming V		Micro Machining IV
Time	<p><i>Chair: Yasunori Saotome / Tohoku University</i> <i>Co-chair:</i></p>		<p><i>Chair: Takashi Matsumura / Tokyo Denki University</i> <i>Co-chair:</i></p>
10:00 ~ 10:20	<p>【IFMM10_011】 CAPABILITY DEVELOPMENT OF PROGRESSIVE EXTRUSION FORMING OF HOLLOW MINIATURE/MICRO PIN FROM SHEET MATERIAL</p> <p>Danno Atsushi*, C.C. Wong, S.C.V. Lim, Yingyot Aue-u-lan, M.Q. Chew <i>Singapore Institute of Manufacturing Technology (SIMTech)</i></p>		<p>【IFMM10_002】 NON-DESTRUCTIVE MEASUREMENTS ON RECRYSTALLIZATION CHARACTERIZATION AND GRAIN SIZE OF POLYCRYSTALLINE SILICONE PRODUCED BY EXCIEMR LASER ANNEALING</p> <p>Chil-Chyuan Kuo* , Chin-Sheng Chao <i>Ming Chi University of Technology</i></p>
10:20 ~ 10:40	<p>【IFMM10_061】 SIZE-EFFECT BASED MICRO FRACTURE BEHAVIOR I MICRO-SCALE PLASTIC DEFORMATION OF SHEET METAL</p> <p>M. W. Fu*, W. L. Chan, J. Lu <i>The Hong Kong Polytechnic University</i></p>		<p>【IFMM10_055】 NANOPRECISION CNC DESKTOP MICRO-PROCESSING MACHINE</p> <p>Hitoshi Ohmori^{1*}, Yoshihiro Uehara¹, Yosuke Hachisu¹ Jin Koizumi² ¹RIKEN, ²The Nexsys Corp</p>
10:40 ~ 11:00	<p>【IFMM10_014】 EXPERIMENTAL INVESTIGATIONS ON CORROSION AND CONTACT RESISTANCE CHARACTERISTICS OF MICRO-STAMPED AND MICROHYDROFORMED SS316L BIPOLAR PLATES FOR PEMFC</p> <p>Ender Dur, Cabir Turan, Ömer Necati Cora, Muammer Koç <i>Virginia Commonwealth University</i></p>		<p>【IFMM10_056】 MICROFABRICATION WITH NEW YB ULTRA-SHORT PULSE LASER</p> <p>Satoshi Wada^{1,2*}, Akihiro Tanabashi², Hitoshi Ohmori¹ ¹RIKEN, ²MEGAOPTO Co., Ltd.</p>
11:00 ~ 11:20	<p>【IFMM10_019】 INVESTIGATIONS ON DIE LIFE AND TRIBOLOGICAL ISSUES IN MICRO-STAMPING OF METALLIC BIPOLAR PLATES FOR FUEL CELLS</p> <p>Mevlüt Fatih Peker, Ömer Necati Cora, Muammer Koç* <i>Virginia Commonwealth University</i></p>		

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Day II - Friday 22 October 2010

Round Table Discussion / Large Conference Room

Time	<i>Chair: Yasunori Saotome / Tohoku University</i> <i>Co-chair: Ming Yang / Tokyo Metropolitan University</i>	
13:00 ~ 13:20	WORLD SMALLEST MICRO GEARD MOTOR	Yukiharu Shimizu / Namiki Precision Jewel Co. LTD.
13:20 ~ 13:40	APPLICATION OF FUNDAMENTAL TECHNIQUE DEVELOPED IN WRISTWATCH FABRICATION TO ENVIRONMENTAL TECHNOLOGY OF AUTOMOBILE PARTS	Ben Kamimura / Komatsuseiki Kosakusho.Co.,LTD.
13:40 ~ 14:00	NANOMETER ACCURACY MICROEDM TECHNOLOGY	Takashi Masaki / MASAKI GIKEN
14:00 ~ 14:30	A PRECISE PRESS FORMING SYSTEM FOR FABRICATION OF MICRO METALLIC DEVICES	Ming Yang / Tokyo Metropolitan University
Coffee Break		
15:00 ~ 15:30	MICRO MANUFACTURING IN NORTH AMERICA	Kornel Ehmann / Northwestern University
15:30 ~ 16:00	MICRO MANUFACTURING IN TAIWAN	Shih-Ming Wang / Chung Yuan Christian University
16:00 ~ 16:30	MICRO MANUFACTURING IN INDIA	Suhas S. Joshi / Indian Institute of Technology Bombay
16:30 ~ 17:00	Integrated Discussion	
18:00 ~ 20:00	Banquet 【Gifu Miyako Hotel】	

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Day III - Saturday 23 October 2010

Symposium on Micro Manufacturing 2010 / International Conference Room		
Time	<i>Chair: Kuniaki Dohda / Nagoya Institute of Technology</i> <i>Co-chair: Takashi Matsumura / Tokyo Denki University</i>	
10:00 ~ 10:50	Opening Lecture	MICRO-MANUFACTURING IN BIOMEDICAL AND ENERGY APPLICATIONS <i>Jian Cao / Northwestern University</i>
10:50 ~ 11:40	Invited Lecture I	INTEGRATED DEVELOPMENT OF MATERIALS AND PROCESSING TECHNOLOGY FOR HIGH-PRECISION MICRO-COMPONENTS <i>Manabu Kiuchi / Tokyo University</i>
11:40 ~ 12:30	Invited Lecture II	NANO/MICRO ROBOTICS FABRICATED BY MICRO/NANO STEREOLITHOGRAPHY FOR FUTURE BIOMEDICINE <i>Koji Ikuta / Tokyo University</i>
12:30 ~ 13:30	Lunch [Large Conference Room]	
13:30 ~ 14:20	Invited Lecture III	CURRENT STATE OF ART AND REVIEW IN MICRO MECHANICAL MACHINING <i>Yoshimi Takeuchi / Osaka University</i>
14:20 ~ 15:10	Invited Lecture IV	STATE OF THE ART IN MICROFORMING IN JAPAN AND VIEW IN THE FUTURE <i>Yasunori Saotome / Tohoku University</i>
15:10 ~ 16:00	Invited Lecture V	PRESENT SITUATION AND PROSPECTS OF MEDICAL/INDUSTRIAL MICRO-DEVICES USING HAPTIC TECHNOLOGY AND ROBOTICS <i>Hideo Fujimoto / Nagoya Institute of Technology</i>
16:00 ~ 16:30	Integrated Discussion	