

## The 8th Asia-Pacific Symposium on Applied Electromagnetics and Mechanics (APSAEM14)

### TECHNICAL PROGRAMME AT A GLANCE

July 22 – 24, 2014

Date	Time	Arrangement	Venue	
22 July (Tue.)	19:00-23:00	Welcome reception (cocktail)	Lebledor (台中金色三麥誠品店)	
23 July (Wed.)	08:00-09:00	Registration	Building Hall (1F)	
	09:00-09:25	Plenary session	Auditorium 106 (1F)	
	09:25-10:10	Key note I/ Chair: XXXXXXXXXXXXXXXX <b>Magnetically suspended artificial heart</b> Prof. T. Masuzawa, Ibaraki University, Japan	Auditorium 106 (1F)	
	10:10-11:00	Coffee break	Building Hall (1F)	
	11:00-12:30	Section A (106)/ Chair: XXXXXXXXXXXXXXXX Computational electromagnetic, Characterization and modeling of electromagnetic materials		Section B (101) / Chair: XXXXXXXXXXXXXXXX Magnetic sensors and measurement, Nondestructive testing
		1-1	Quasi-Analytical Approach to the Resonance Phenomenon IWANAGA, Renya; MARINOVA, Iliana; SAITO, Yoshifuru	4-1 High-Tc SQUID based NMR and MRI in microtesla fields LIAO, Shu-Hsien; WANG, Ming-Wei; CHEN, Hsien-Hsien; CHIEH, Jen-Je; YANG, Hong-Chang; HORNG, Heng-E
1-2		From Galilean covariance to Maxwell equations: Back to the quasi-static regimes MAZAURIC, Vincent	4-2 EXAMINATION OF OSCILLATION FREQUENCY TO REDUCE CHANGE IN THE SENSITIVITY OF AN EDDY-CURRENT DISPLACEMENT SENSOR DUE TO COAXIAL CABLE TORSION SHIMOJIMA, Yoshifumi; OMURA, Kohei; BU, Yinggang; MIZUNO, Tsutomu	

	1-3	Vector Magnetic Characteristic Analysis by using Complex E&S Model taking account of Stress Effect ANDO, Hayato; KAI, Yuichiro; ENOKIZONO, Masato	5-1	Evaluation of the Material Degradation of Austenitic Stainless Steel under Pulsating Tension Stress Using Magnetic Methods MOHACHIRO, Oka; TERUTOSHI, Yakushiji; MASATO, Enokizono
	3-1	Stress-Frequency Characteristics of the Complex permeability NEMORI, Hideaki; MARINOVA, Iliana; SAITO, Yoshifuru	5-2	Defect Searching in the Curved Surface by the Film $\infty$ Coil MARUYAMA, Kouki; MARINOVA, Iliana; SAITO, Yoshifuru
	3-2	Fourier Modeling of the Ferromagnetic Characteristics WAKUDA, Kyosuke; MARINOVA, Iliana; SAITO, Yoshifuru	5-3	First Order Frequency Fluctuation Analysis of the Barkhausen Signals NISHIYAMA, Yuki; MARINOVA, Iliana; SAITO, Yoshifuru
	3-3	Two-dimensional Magnetostriction under Vector Magnetic Characteristic WAKABAYASHI, Daisuke; ENOKIZONO, Masato	5-4	A Study on Backside defect searching by Low Frequency Excitation of the $\infty$ coil HAMANAKA, Shunichi; MARINOVA, Iliana; OIKAWA, Yoshiro; SAITO, Yoshifuru
12:30-13:45	Lunch		Building Hall (1F)	
13:45-14:30	Key note II/ Chair: XXXXXXXXXXXXXXX <b>Enhancing the image contrast for tumor discrimination in rats using antibody-activated magnetic nanoparticles in low magnetic fields</b> Chair Prof. Yang, Hong-Chang Kun Shan University, TW		Auditorium 106 (1F)	
14:30-15:20	Coffee break		Building Hall (1F)	
15:20-16:50	Section C (106)/ Chair: XXXXXXXXXXXXXXX Electromagnetic and electromechanical devices and systems		Section D (101)/ Chair: XXXXXXXXXXXXXXX Power electronics and drive systems, Electromagnetic compatibility (EMC), MEMS	
	8-1	A Control Method for Vertical Axis Wind Turbine based-PMSG MORINAGA, Shuta; IKEMA, Hiroki;	7-1	Fabrication of magnet actuable patterned array of Au-Ni coaxial nanorods HSU, Che-Wei; WANG, Gou-Jen

			MATAYOSHI, Hidehito; SENJYU, Tomonobu; FUNABASHI, Toshihisa		
		8-2	Improvement Efficiency and Miniaturization of Bone Conduction Speaker YOSHIKAWA, Koya; KITAGAWA, Wataru; TAKESHITA, Takaharu	7-10	Design of a bistable electrostatic vibration energy harvester WANG, Dung-An; NGUYEN, Huu-Tu; HONG, Perry
		8-3	Analysis Method for Ni-Mn-Ga Magnetic Shape Memory Alloy Linear Actuator Using Play Hysteresis Operator MATSUNAGA, Kensuke; NIGUCHI, Noboru; HIRATA, Katsuhiko	10-1	HYBRID MODELING USING A STIRLING ENGINE AND A DC MOTOR SITTIARTTAKORN, Vuttichai; BOONTO, Sudchai
		8-4	Optimal Design of High-Performance and Low Magnet Usage Surface Mounted Brushless Permanent Magnet Motors HWANG, Chang-Chou; CHANG, Chia-Ming; CHAN, Chien-Hang	11-1	A NOVEL POWER SUPPLY WITH BLINKING LEDS AND SUBSTRATE TEMPERATURE FEEDBACK FOR A PLANT FACTORY YAMAGATA, Ryota.; YAMADA, Hiroaki; HANAMOTO, Tsuyoshi; HIEDA, Yoshimasa; FUJIWARA, Hajime
		8-5	3-D Finite Element Analysis of a DC Electromagnet in Releasing Operation KAWASE, Yoshihiro; YAMAGUCHI, Tadashi; OTANI, Yuki; TAKEMOTO, Takanori	11-2	A BATTERY CHARGING SYSTEM FOR INTERMITTENT GENERATION FROM A SYNCHRONOUS GENERATOR WITH NOVEL MAXIMUM POWER POINT TRACKING CONTROL IMAMOTO, Sho; YAMADA, Hiroaki; TSUYOSHI, Hanamoto; YOSHIHITO, Shirai; MISRON, Norhisam
		8-6	Leakage flux recovery coil for energy harvesting using magnetoplated wire YAMAMOTO, Tatsuya; BU, Yinggang; MIZUNO, Tsutomu	11-3	DDPWM-BASED POWER CONVERSION SYSTEM USING A MATRIX CONVERTER FOR AN ISOLATED POWER SUPPLY HANAMOTO, Tsuyoshi; YAMADA, Hiroaki; TOOSI, Saman; MAILAH, Nashiren Farzailah; NORHISAM, Misron
	18:00-20:30	Photo/Banquet		NCHU	
24 July	08:00-09:00	Registration		Building Hall (1F)	
(Thu.)	09:00-10:15	Section E (106)/ Chair: XXXXXXXXXXXXXXXX Electromagnetic compatibility (EMC), Applications of		Section F (101)/ Chair: XXXXXXXXXXXXXXXX Applications in telecommunication, Magnetic fluid I	

		electromagnetic to medical treatments		
	13-1	A software-related IC-EMI Estimation Tool for Microcontroller YUAN, Shih-Yi; LIN, Kuo-Chih	16-1	MIMO Beamforming System over 3D Channel CHEN, Joy Iong-Zong
	14-1	Development of an Internal Induction Needle Heating System for Hyperthermia Applications BUI, Huy-Tien; HWANG, Sheng-Jye	18-1	Generating High Affinity Aptamer by Using Micro Magnetic Particles LAI, Ji-Ching; HONG, Chin-Yih
	14-2	Estimation of crural muscles states by multipoint mechanomyogram measurement IKEDA, Shohei; ARAI, Tatsuya; OKUYAMA, Takeshi; TANAKA, Mami	18-2	Simulations of Magnetic Microchain and Magnetic Microswimmer by using Hybrid Lattice Boltzmann Method TSUTSUMI, Hiroaki; SUMIYOSHI, Hirotaka; IDO, Yasushi; CHEN, Ching - Yao
	14-3	LAB-ON-CHIP SYSTEM COMBINED OPTICAL TWEEZERS AND DIELECTROPHORESIS MIZUTA, Yoshihiro; TAGUCHI, Kozo	18-3	DAMPING FORCE OF A DAMPER UTILIZING MR FLUIDS CONTAINING NEEDLE-LIKE PARTICLES YOKOYAMA, Hiroki; IDO, Yasushi; TOBITA, Shunsuke; HAYASHI, Koichi
	14-4	Femtosecond Fiber Laser Applying for Cell Fusion NGUYEN DANG, Trang; MIZUTA, Yoshihiro; TAGUCHI, Kozo	18-4	EFFECT OF MAGNETIC FIELD DIRECTION ON FORCED CONVECTIVE HEAT TRANSFER OF MAGNETIC FLUID MOTOZAWA, Masaaki; KINO, Kyohei; SAWADA, Tatsuo; KAWAGUCHI, Yasuo; FUKUTA, Mitsuhiro
10:15-11:10	Coffee break		Building Hall (1F)	
11:10-12:25	Section G (106)/ Chair: XXXXXXXXXXXXXXX Magnetic fluid II, Electromagnetics and electromechanical education		Section H (101)/ Chair: XXXXXXXXXXXXXXX Miscellaneous	
	18-5	Boiling Heat Transfer Characteristics of Binary Magnetic Fluid Under Non-uniform Magnetic field YAMASAKI, Haruhiko	19-1	Frequency response of polymer sensor for measuring finger scratching motion OKUYAMA, Takeshi; HATAKEYAMA, Kazuki; TANAKA, Mami
	18-6	Anisotropic Thermal Conductivity of Ferrofluid under Magnetic Field YOSHIOKA, Atsushi; IWAMOTO, Yuhiro; IDO, Yasushi; YAMAGUCHI, Hiroshi	19-2	Influence of Installation Angle of a Damper Using a Magnetic Particle Assemblage on Damping Force under Applied Magnetic Field KAWAMOTO, Ryusuke; IDO, Yasushi; HAYASHI,

				Koichi
	18-7	Magnetically Self-Circulate Heat Transport Device using Magnetic Fluid IWAMOTO, Yuhiro; YAMASAKI, Haruhiko; NIU, Xiao-Dong; YAMAGUCHI, Hiroshi	19-3	Using RFID and Frequency Hopping Techniques to Simplify Radio Resource Management in Mobile Communication Systems TSAI, Chia-Sheng
	17-1	Design and Implementation of a Complex Electromechanical System NAFALSKI, Andrew	19-4	DESIGN AND PARAMETRIC OPTIMIZATION OF WIND TURBINE BLADES SIREGAR, Houtman P.; NAINGGOLAN, Rufinus; RAJA GUKGUK, Yenny Ria; SURYAMAN, Maman
			19-5	CONSTRUCTION AND PERFORMANCE TESTING OF WIND TURBINE NAINGGOLAN, Rufinus; SIREGAR, Houtman P.; RAJA GUKGUK, Yenny Ria; SURYAMAN, Maman
12:25-13:30	Lunch (lunch box)		Building Hall (1F)	
13:30-15:00	Section I (106)/ Chair: XXXXXXXXXXXXXXXX Electromagnetic actuator and applications of permanent magnet I		Section J (101)/ Chair: XXXXXXXXXXXXXXXX Electromagnetic actuator and applications of permanent magnet II	
	9-1	Reduction in rolling tilt of objective lens actuators for optical disc drives KIMURA, Katsuhiko; SAITO, Hidenao; SUGIURA, Toshihiko	9-7	Characteristics Comparison of Permanent-Magnet-Type Magnetic-Geared Motors NIGUCHI, Noboru; HIRATA, Katsuhiko; MORIMOTO, Eiki; OHNO, Yuki
	9-2	POWER MAPPING CHARACTERISTIC OF DOUBLE STATOR PERMANENT MAGNET MISRON, Norhisam	9-8	STUDY ON SURFACE PERMANENT MAGNETIC GEAR WITH STACKABLE STRUCTURE KUROIWA, Shota; ANDO, Yoshinori; MURAKAMI, Iwanori
	9-3	PERFORMANCE COMPARISON OF CONVENTIONAL SPOKE AND HOLLOW-ROTOR PERMANENT MAGNET GENERATOR FOR SMALL ENERGY HARVESTING APPLICATION RAJA OTHMAN, Raja Nor Firdaus	9-9	Shape Optimization for Magnet and Flux Barriers of IPMSM by using Polygon Model Method with GP ISHIKAWA, Kota; KITAGAWA, Wataru; TAKESHITA, Takaharu
	9-4	Dynamic Characteristic Analysis and Experimental Verification of 2-DoF Resonant Actuator under Feedback Control	9-10	Development of Variable Rate Spring by Permanent Magnet with Flux Concentration Method MURAKAMI, Iwanori; OCHIAI, Hiroto;

		YOSHIMOTO, Takamichi; ASAI, Yasuyoshi; HIRATA, Katsuhiko; OTA, Tomohiro		MATSUMOTO, Shunya; ANDO, Yoshinori
		9-5 Radial Differential Magnetic Harmonic Gear OHNO, Yuki; HIRATA, Katsuhiko; NIGUCHI, Noboru; MORIMOTO, Eiki	9-11	Utilization of permanent magnet in Helmholtz coil for dynamic viscoelasticity measurement WANG, Yunche; KO, Chih-Chin; SHIAU, Li-Ming
		9-6 Experimental Evaluation of New Magnetic Movement Converter for Linear Oscillatory Actuator KITAYAMA, Fumiya; HIRATA, Katsuhiko; NIGUCHI, Noboru; YAMADA, Tatsuro	9-12	Generator Characteristics of an Interior Permanent Magnet Machine Designed by a Topology Optimization with GA Considering Cluster of Materials ISHIKAWA, Takeo
	15:00-15:50	Coffee break/ Poster session		Building Hall (1F)
	15:50-17:00	Poster session		
	17:00-17:20	Closing Ceremony		
25 July (Fri.)	06:30-20:00	Technical tour		

Each presentation is 12 minutes and the Q&A is 3 minutes. The computer and the projector are provided in the auditoriums.

## Poster section

### Building Hall (1F) /(15:00-17:00, 24, July)

- 1-4 A Study of Electrical Loss in Reactors by the Magnetic Field Analysis  
Mr. SAWADA, Masashi; TAMIYA, Tomoaki; SHINDO, Yuji; KAWASE, Yoshihiro; YAMAGUCHI, Tadashi; KATAGIRI, Hirokatsu; SAKURAGI, Takuya
  
- 1-5 Improvement of Convergence Behavior to Steady-State in Magnetic Field Analysis of Synchronous Motor  
KARAGIRI, Hirokatsu; KAWASE, Yoshihiro; YAMAGUCHI, Tadashi; OTANI, Yuki
  
- 1-6 PERFORMANCE ANALYSIS OF A CYLINDRICAL HALL THRUSTER  
Yen-Sen Chen, Luke Yang
  
- 4-3 Methodology of Measuring Minute Remanence up to Submicron Tesla Level  
MINAMITANI, Tamotsu; WAKAURA, Dai; YAMADA, Sotoshi
  
- 4-4 Evaluation of pickup coil for near magnetic field detection with 20 mm spatial resolution  
YAMAMOTO, Takahiro; TASHIRO, Kunihisa; WAKIWAKA, Hiroyuki
  
- 6-1 Influence of Stress-Relief Annealing on Magnetic Properties of Motor Cores by using a Induced Current Heating Method  
KAI, Yuichiro; SHOGO, Yoshida; ENOKIZONO, Masato

- 7-2 PH Sensing Using Modified Silicon Nanowire Field Effect Transistors  
TSAI, Yi-Chin
- 7-3 Dynamics of a Superparamagnetic Bead Chain in an Oscillating Field  
LI, Yan-Hom; LIN, He-Chin; CHEN, Ching-Yao
- 7-4 Fabrication of optical compound film with imprinting and UV laser direct writing process  
PAN, Cheng-Tang; CHEN, Yi-Chian; LIN, Po-Hung; HSIEH, Chi-Chang; TSUNG-LIN, Yang; LIN, Yu-Ru; WANG, Shao-Yu; CHIU, Chen-Chih; WU, Yu-Jhih; Mr. SIE, Wei-Ting
- 7-5 Fabricate Zinc Oxide Piezoelectric Nanorods by Electrospraying Method with Hydrothermal Process  
PAN, Cheng-Tang; HSIEH, Chi-Chang; WANG, Shao-Yu; CHEN, Yi-Chian; HUNG, Kun-Hao; LIU, Zong-Hsin; YEN, Chung-Kun; WANG, Wei-Chuan; JHANG, Yu-Chang
- 7-6 Electrospun PVDF Fibers Using Multi-spinnerets  
HSIEH, Chi-Chang; CIOU, Fong-Yi; PAN, Cheng-Tang; YEN, Chung-Kun; LIN, Yan-Liang; WANG, Bo-Sheng; LI, Yan-Huei; CHEN, Chin-Wei
- 7-7 Fabrication technology research of nickel nozzle plate for micro nebulizer  
JIAN, Yunshan
- 7-8 RESEARCH AND ANALYSIS ON PIEZOELECTRIC PROPERTIES OF NEAR-FIELD ELECTROSPINNING PVDF NANOFIBER  
HSIEH, Chi-Chang; WANG, Bo-Sheng; PAN, Cheng-Tang; YEN, Chung-Kun; LIU, Zong-Hsin; LAI, Hao-Wei; CIOU, Fong-Yi; LI,



Yan-Huei

- 7-9 THE APPLICATION OF OPTIMAL SILVER NANOWIRES TO CONDUCTIVE FILM  
HSIEH, Chi-Chang; YANG, Tsung-Lin; PAN, Cheng-Tang; WU, I-Chou; CHEN, Yi-Chian; HUNG, Kun-Hao; LIN, Yu-Ru; CHIU, Chen-Chih; LIN, Po-Hung; SIE, Hong-Ming
- 8-7 A hydrostatic bearing test system for the determination of viscous properties of magnetic-fluid lubricants  
WENG, Huei Chu; CHEN, Lu-Yu
- 8-8 Cogging Reduction of a Low-speed Direct-drive Axial-gap Generator  
HASHIMOTO, Tomoki; TODAKA, Takashi; SATO, Takeru; SHIMOJI, Hiroyasu
- 8-9 Study of Parallel Synchronous Drive Method of Permanent Magnet Linear Synchronous Motor  
SUZUKI, Kenji; UTIYAMA, Kou; PIAO, He; DOHMEKI, Hideo
- 8-10 Peel force of Electrostatic Adhesion in Crawler-type Electrostatic Climbing Robots  
WANG, Hongqiang; YAMAMOTO, Akio
- 8-11 Numerical Investigation of Pulsed Dual-Frequency Argon Capacitively Coupled Plasma  
WANG, Ting-Hao; CHIOU, Chuei-Ching; GU, Bi-Ren; HUNG, Chieh-Tsan; WU, Jong-Shinn
- 9-13 Study on Sensorless Load Estimation Method for Linear Resonant Actuator Using Disturbance Compensation Control  
ASAI, Yasuyoshi; KATO, Masayuki; HIRATA, Katsuhiko; OTA, Tomohiro

- 9-14 3-D Finite Element Analysis of A.C. Electromagnetic Pump with Diode Rectifier  
KAWASE, Yoshihiro; YAMAGUCHI, Tadashi; MORI, Kazuma
- 9-15 Examination of the primary coil corresponding to the capsule endoscope  
KAWAI, Tatsuya; WATADA, Masaya
- 9-16 A study of an electromagnetic energy harvester device with negative magnetic spring characteristics  
BU, Yinggang; INOUE, Kaname; MIZUNO, Tsutomu
- 9-17 Performance comparison of torque and efficiency of SRM based on structure of slot  
SUGIMOTO, Kei; DOHMEKI, Hideo; SUZUKI, Kenji
- 10-2 Effective Inductance and Loss of a Small Coil for Implantable Devices  
NAGOSHI, Ryohei; OGA, Satohiro; MATSUI, Daigo; SHIMATANI, Yuichi; KIRYU, Shogo
- 10-3 Effects of Variability in Resonant Frequencies on Load Current and Efficiency of a Resonance-Based Wireless Power Transfer Circuit  
YASUIKE, Yuko; AKIYAMA, Misato; SHIMATANI, Yuichi; KIRYU, Shogo
- 10-4 Effects of stray Capacitances in Resistive Voltage Dividers on Electric Power Measurements Frequency Range up to 1 MHz  
AKIYAMA, Misato; MATSUMAE, Shiina; KIRYU, Shogo

- 11-4 Transport experiment of automatic gantry crane operation by linear induction motor  
MATSUMORI, Kazuki; NAKAGAWA, Toshiko
- 14-5 Double-Pancake Exciting Coils with Back Yoke for Magnetic Field Generating Generator for Medical Treatments  
YAMADA, Sotoshi; IKEHATA, Yoshio; HAYASHI, Ryouhei; UENO, Toshiyuki
- 14-6 Effect of Magnetic Fields on Potency of Anticancer Drug Cisplatin in Human Cancer Cell Line  
KAKIKAWA, Makiko; USHIMARU, Toru; YAMADA, Sotoshi
- 14-7 METAL COATED CHEMICALLY ETCHED FIBER PROBE FOR SINGLE CELL MANIPULATION AND ISOLATION  
TAGUCHI, Kozo; KIDO, Ryo; MIZUTA, Yoshihiro
- 14-8 CELLULAR TEMPERATURE MEASUREMENT BY DIELECTROPHORESIS  
KIDO, Ryo; TAGUCHI, Kozo
- 14-9 Enhancement of Radical Generation in Round Helium-Based Atmospheric-Pressure Plasma Jet Using Various Electrode Arrangements and Their Application in Sterilization  
WU, Jong-Shinn; LIU, Chih-Tung; WU, Ching-Jung; YANG, Yi-Wei; LIN, Zhi-Hua
- 14-10 Development of Temporal Multiscale Algorithm in Plasma Fluid Modeling: One-Dimensional Validation  
GU, Bi-Ren; CHIOU, Chuei-Ching; HU, Meng-Hua; HUNG, Chieh-Tsan; LIN, Kun-Mo; WU, Jong-Shinn
- 18-8 Dual-Imaging Scanning SQUID Biosusceptometry for Locations of Tumors Targeted by Magnetic Nanoparticles

. CHIEH, Jen-Jie; HUANG, K. W.; H.E. HORNG, H.E. Horng; HONG, C. Y.; YANG, H. C.

18-9 Novel Planetary Motions of Ferrodrops in a Rotating Magnetic Field

CHEN, Ching-Yao; HSUEH, Hao-Chung

19-6 Investigations on dynamic mechanical properties of reactive diluent addition and nano-silica doped epoxy composites

CHANG, Huey-Ling; CHEN, Chih-Ming

19-7 Friction Characteristics for Clasp Locked Precision Locknuts

CHEN, Chih-Ming; LIN, Gao-Min

19-8 Crack Effects on the Dynamic Behavior of Orthotropic Composite Pre-Twisted Blades

HSU, MING-HUNG

19-9 Nitric oxide concentration in blood and blood pressure in rats are affected by the distance of atmospheric plasma inhalation

TAKAHASHI, Genu; TSUTSUI, Chihiro; MORI, Akira; WATADA, Masaya; HIRATA, Takamichi

19-10 Examination of the waveform processing method in monitor equipment of ECG in daily life for infants

TOYOSHIMA, Minori; MORI, Akira; WATADA, Masaya

19-11 Operation Verification of the Sensing Device for Operation Force in Surgical Assisted System

MATSUO, Takafumi; WATADA, Masaya

- 19-12 Development of Wheelchairs Going up High Curbs  
KONDO, HIROTO; WATADA, MASAYA
- 19-13 Examination of the automatic detection method of a breast cancer using an ultrasonographic image  
MIYAZAKI, Masato; MORI, Akira; WATADA, Masaya
- 19-14 Adopting Hydrophobic Interaction between Molecular Probes and Gold Nanoparticles for Tuberculosis Diagnosis  
SHEN, Shu-Wei
- 19-15 Dynamics analysis of cycloidal speed reducers with two-stage design  
HSIEH, Chiu-Fan; JIAN, Wun Si