



# 2011 International Conference on Advanced Mechatronic Systems

August 11-13, 2011  
Zhengzhou, China



## TECHNICAL PROGRAM (Tentative)

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<b>ICAMechS 2011</b>	
Wednesday, August 10, 2011	

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<b>15:00 - 18:00</b>	<b>Registration</b>
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<b>18:30 - 20:00</b>	<b>Welcome Reception</b>
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<b>ICAMechS 2011</b>	
Thursday, August 11, 2011	

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<b>08:40 - 09:40</b>	Special lecture room
<b>Plenary Speech 1</b>	
Iterative learning control from analysis to engineering to robotic-assisted upper limb stroke rehabilitation	
Eric Rogers <i>University of Southampton, UK</i>	
Chair: Hongnian Yu	Staffordshire Univ., UK

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**09:40 - 10:00 Break**

### Morning Technical Sessions 10:00-12:00, Thursday, August 11, 2011

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<b>ThuA01</b>	No. 1 lecture room
<b>Robotics and mechatronics</b>	
Lecture Session	
Chair: Shinji Wakui	Tokyo Univ. of Agriculture and Tech., Japan
Co-Chair: Hongnian Yu	Staffordshire Univ., UK

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<b>10:00-10:20</b>	<b>ThuA01-01</b>
<i>A geometric method for calibration of the image center</i>	

Yongchun Fang	Nankai Univ., China
Xuebo Zhang	Nankai Univ., China
Baoquan Li	Nankai Univ., China
Ning Sun	Nankai Univ., China

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<b>10:20-10:40</b>	<b>ThuA01-02</b>
<i>Experimental validation of control for a positioning stage by feedback error learning</i>	

Yukinori Nakamura	Tokyo Univ. of Agriculture and Tech., Japan
Kazuki Morimoto	Tokyo Univ. of Agriculture and Tech., Japan

Shinji Wakui Tokyo Univ. of Agriculture and Tech., Japan  
10:40-11:00 ThuA01-03

*Control of human hand considering uncertainties*

M. Moavenian Ferdowsi Univ. of Mashhad, Iran  
M.R. Gharib Ferdowsi Univ. of Mashhad, Iran  
A. Daneshvar Ferdowsi Univ. of Mashhad, Iran  
S. Alimardani Ferdowsi Univ. of Mashhad, Iran

11:00-11:20 ThuA01-04

*The design of intelligent robot based on embedded system*

Mingliang Liang Zhengzhou Railway Vocational & Technical College, China  
Xinqiang Wang Zhongyuan Univ. of Tech., China

11:20-11:40 ThuA01-05

*Design of two optimal controllers for mechatronic suspension system*

Sallehuddin Mohamed Haris Univ. Kebangsaan Malaysia, Malaysia  
Wajdi S. Aboud Univ. Kebangsaan Malaysia, Malaysia

**ThuA02** No. 2 lecture room  
**Information processing** Lecture Session

Chair: Xinkai Chen Shibaura Institute of Tech., Japan  
Co-Chair: Dongyun Wang Zhongyuan Univ. of Tech., China

10:00-10:20 ThuA02-01

*Research on selection system based on bayesian recommendation model*

Guiqin Dou Zhongyuan Univ. of Tech., China  
Yansong Zhu Zhongyuan Univ. of Tech., China  
Yumin Han Zhongyuan Univ. of Tech., China

10:20-10:40 ThuA02-02

*Stabilization for fractional-order networked control systems with input time-varying delays*

Xiaona Song Henan Univ. of Science and Tech., China  
Ines Tejado Univ. of Extremadura, Spain  
Yangquan Chen Utah State Univ., USA

10:40-11:00 ThuA02-03

*Algorithm on detection and identification of foreign fibers in raw cotton*

Dongyun Wang Zhongyuan Univ. of Tech., China  
Hongtao Peng Zhongyuan Univ. of Tech., China  
Yongping Dan Zhongyuan Univ. of Tech., China  
Fanghua Liu Zhongyuan Univ. of Tech., China  
Liusong Wang Zhongyuan Univ. of Tech., China

11:00-11:20 ThuA02-04

*Optimal path planning for material and products transfer in steel works using ACO*

Mingcong Deng Tokyo Univ. of Agriculture and Tech., Japan  
Akira Inoue Okayama Univ., Japan

Satoru Kawakami GS Uasa Corp., Japan  
11:20-11:40 ThuA02-05

*Radar equation of high-speed weak target*

Cunsuo Pang North Univ. of China., China  
Nan Zhang Second Research Academy of CASIC, China  
Xiangyang Lu Zhongyuan Univ. of Tech., China

**ThuA03** No. 3 lecture room  
**Genetic algorithm, neural network and PSO** Lecture Session

Chair: Masahiro Oya Kyusyu Institute of Tech., Japan  
Co-Chair: Wudai Liao Zhongyuan Univ. of Tech., China

10:00-10:20 ThuA03-01

*Exponential stability analysis for the switched stochastic hopfield neural networks with time-varying delays*

Huimin Xiao Henan Univ. of Economics and Law, China  
Chunhua Wang Ocean Univ. of China, China

10:20-10:40 ThuA03-02

*Optimized fuzzy PDC controller for nonlinear systems with T-S model mismatch*

A. Zeiaee Tabriz Univ., Iran  
H. Kharrati Tabriz Univ., Iran  
S. Khanmohammadi Tabriz Univ., Iran

10:40-11:00 ThuA03-03

*On zeros of sampled-data system with relative degree two*

Shan Liang Chongqing Univ., China  
Mitsuaki Ishitobi Kumamoto Univ., Japan  
Tomoki Koga Kumamoto Univ., Japan  
Sadaaki Kunimatsu Kumamoto Univ., Japan

11:00-11:20 ThuA03-04

*Design of PSO-based fuzzy gain scheduling PI controller for four-area interconnected AGC system after deregulation*

Guolian Hou North China Electric Power Univ., China  
Lina Qin North China Electric Power Univ., China  
Xinyan Zheng North China Electric Power Univ., China  
Jianhua Zhang North China Electric Power Univ., China

11:20-11:40 ThuA03-05

*Improved particle swarm optimization algorithms*

Wudai Liao Zhongyuan Univ. of Tech., China  
Junyan Wang Zhongyuan Univ. of Tech., China  
Xingfeng Wang Zhongyuan Univ. of Tech., China  
Jiangfeng Wang Zhongyuan Univ. of Tech., China

11:40-12:00 ThuA03-06

*The global existence of the solution and impulsive synchronization for m-dimensional reaction-diffusion system*

Wanli Yang Academy of Armored Forces Engineering, China  
Suwen Zheng Academy of Armored Forces Engineering, China

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**ThuA04** Special lecture room  
**Process modeling, optimization and system design**

Lecture Session

Chair: Chun-Yi Su Concordia Univ., Canada  
Co-Chair: Zi-Jiang Yang Ibaraki Univ., Japan

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10:00-10:20 ThuA04-01

*An overview of modelling and simulation of thermal power plant*

Changliang Liu North China Electric Power Univ., China  
Hong Wang The Univ. of Manchester, UK  
Jinliang Ding Northeastern Univ., Chian  
Chenggang Zhen North China Electric Power Univ., China

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10:20-10:40 ThuA04-02

*Fast algorithm of supervisory predictive control*

Guolian Hou North China Electric Power Univ., China  
Yi Sun North China Electric Power Univ., China  
Jingbin Liu North China Electric Power Univ., China  
Jianhua Zhang North China Electric Power Univ., China

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10:40-11:00 ThuA04-03

*Intelligent stochastic quality control of non-Gaussian chemical processes*

A. Ahammed The Univ. of Manchester, UK  
A. Wang Anhui Univ., China  
Hong Wang The Univ. of Manchester, UK

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11:00-11:20 ThuA04-04

*Elementary siphons in a class of generalized petri nets and their application*

Yifan Hou Xidian Univ., China  
Zhiwu Li Xidian Univ., China  
Ding Liu Xidian Univ., China  
Mi Zhao Shihezi Uni., China

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11:20-11:40 ThuA04-05

*Network based robust adaptive thermal control design for aluminum plate*

Masahiro Sanada Okayama Univ., Japan  
Mingcong Deng Tokyo Univ. of Agriculture and Tech., Japan  
Shengjun Wen Tokyo Univ. of Agriculture and Tech., Japan

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11:40-12:00 ThuA04-06

*Modeling and simulation for parallel hybrid electric vehicle power train*

Zhumu Fu Henan Univ. of Science and Tech., China  
Gaolei Hou Xuji Metering Limited Company, China  
Aiyun Gao Henan Univ. of Science and Tech., China

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**12:00 - 13:00 Lunch**

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**13:00 - 14:00** Special lecture room

**Plenary Speech 2**

Integrated information systems for safety and supporting functions of plants in complex industrial area

Akira Inoue

Okayama University, Japan

Chair: Ikuro Mizumoto Kumamoto Univ., Japan

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**14:00 - 14:20 Break**

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**Early Afternoon Technical Sessions**  
**14:20-16:00, Thursday, August 11, 2011**

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**ThuM01** No. 1 lecture room  
**Motor control** Special Session

Organizer: Hao Chen China University of Mining and Tech., China  
Chair: Hao Chen China University of Mining and Tech., China  
Co-Chair: Shiro Masuda Tokyo Metropolitan University, Japan

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14:20-14:40 ThuM01-01

*Study on simulation model of switched reluctance startor/generator system based on wavelet neural network*

Xiaoshu Zan China Univ. of Mining and Tech., China  
Fangnan Xie China Univ. of Mining and Tech., China

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14:40-15:00 ThuM01-02

*Switched reluctance generator system based on single neuron adaptive PID controller*

Xiaoshu Zan China Univ. of Mining and Tech., China  
Fangnan Xie China Univ. of Mining and Tech., China

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15:00-15:20 ThuM01-03

*Comparative study on the dynamic behaviors of SRD operated at two control modes*

D.S. Yu China Univ. of Mining and Tech., China  
Hao Chen China Univ. of Mining and Tech., China

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15:20-15:40 ThuM01-04

*Reference model output following control design for a direct current servo control system*

Yuguo Chen Zhongyuan Univ. of Tech., China  
Dongyun Wang Zhongyuan Univ. of Tech., China  
Peixue Wang Zhongyuan Univ. of Tech., China

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15:40-16:00 ThuM01-05

*Cascade high gain observers without mechanical sensor for the asynchronous machine*

Chouya Ahmed Center University of Khemis-Miliana, Algeria  
Chenafa Mohammed ENSET of Oran, Algeria  
Mansouri Abdellah ENSET of Oran, Algeria  
Bouhenna Abdelrahmane ENSET of Oran, Algeria

**ThuM02** No. 2 lecture room**Optimization, prediction and control** Lecture Session

Chair: Hong Wang The Univ. of Manchester, UK

Co-Chair: Yukinori Nakamura  
Tokyo Univ. of Agriculture and Tech., Japan

14:20-14:40 ThuM02-01

*Thermal energy minimisation in papermaking via MD control approach*

P. Afshar	The Univ. of Manchester, UK
J. Mack	Perceptive Engineering Ltd., UK
P. Austin	Cambridge Univ., UK
M. Brown	The Univ. of Manchester, UK
J. Maciejowski	Cambridge Univ., UK
Hong Wang	The Univ. of Manchester, UK

14:40-15:00 ThuM02-02

Feedback control of a class of nonlinear discrete systems with state time-varying delay

Cunchen Gao	Ocean Univ. of China, China
Yan Xu	Ocean Univ. of China, China

15:00-15:20 ThuM02-03

*Numerical study of phase change problem with periodic boundary condition*

Lianghui Qu	Zhongyuan Univ. of Tech., China
Feng Ling	Zhaoqing Univ., China

15:20-15:40 ThuM02-04

*Robust control for a class of nonlinear systems with unknown perturbations*

Ni Bu	Tokyo Univ. of Agriculture and Tech., Japan
Mingcong Deng	Tokyo Univ. of Agriculture and Tech., Japan

15:40-16:00 ThuM02-05

*Modelling and fault diagnosis for DFIGs with multi-phase inter-turn short circuit*

Qian Lu	The Univ. of Manchester, UK
Timofei Breikin	The Univ. of Manchester, UK
Hong Wang	The Univ. of Manchester, UK

**ThuM03** No. 3 lecture room**Novel control techniques** Lecture Session

Chair: Zi-Jiang Yang Ibaraki Univ., Japan

Co-Chair: Krzysztof Galkowski The Univ. of Wuppertal, Germany

14:20-14:40 ThuM03-01

*A simulation model of focusing type three GaAs solar cells in the condition of following sun*

Erqiang Xu	Henan Electric Power Bureau of State Grid Corp., China
Lei Liu	Henan Electric Power Bureau of State Grid Corp., China

Xiaolei Wang Zhongyuan Univ. of Tech., China

14:40-15:00 ThuM03-02

*Pareto optimization of serial-batching scheduling problems on two agents*

Qi Feng	Zhengzhou Univ., China
	Zhongyuan Univ. of Tech., China

Zhiyun Yu Zhongyuan Univ. of Tech., China

Weiping Shang Zhongyuan Univ. of Tech., China

15:00-15:20 ThuM03-03

*Compensation of hysteresis nonlinearity for a piezoelectric actuator using a stop operator-based Prandtl-Ishlinskii model*

Zhi Li	Northeastern Univ., China
	Concordia Univ., Canada

Omar Aljanaideh Concordia Univ., Canada

Chun-Yi Su Concordia Univ., Canada

Subhash Rakheja Concordia Univ., Canada

Mohammad Al Janaideh Concordia Univ., Canada

15:20-15:40 ThuM03-04

*2D systems based iterative learning control revisited*

Lukasz Hladowski Univ. of Zielona Gora, Poland

Krzysztof Galkowski The Univ. of Wuppertal, Germany

Eric Rogers Univ. of Southampton, UK

Anton Kummert Univ. of Wuppertal, Germany

15:40-16:00 ThuM03-05

*Decentralized adaptive robust control of robot manipulators*

Zi-Jiang Yang Ibaraki Univ., Japan

Youichirou Fukushima Kyushu Univ., Japan

Pan Qin Kyushu Univ., Japan

**ThuM04** Special lecture room**Process control** Lecture Session

Chair: Zhi-Cong Deng Intel Japan Co. Ltd., Japan

Co-Chair: Guolian Hou North China Electric Power Univ., China

14:20-14:40 ThuM04-01

*The analysis for the leaking flowrate in the spherical valveplate sector considering the influence of the flow inertia*

Renxi Hu Mechanical Engineering College, China

Wentong Xin Mechanical Engineering College, China

Zhizun Li Mechanical Engineering College, China

Fengqi Han Mechanical Engineering College, China

14:40-15:00 ThuM04-02

*Neuro-PID control of heat exchanger in an organic rankine cycle system for waste heat recovery*

Rui Wang North China Electric Power Univ., China

Chao Wang North China Electric Power Univ., China

Xiang Zhao North China Electric Power Univ., China

Wenfang Zhang North China Electric Power Univ., China

15:00-15:20	ThuM04-03
<i>Simulation research of the multi-variable generalized predictive control in 500MW unit plant coordinated control system</i>	
Guolian Hou	North China Electric Power Univ., China
Yuan Xi	North China Electric Power Univ., China
Jingbin Liu	North China Electric Power Univ., China
Jianhua Zhang	North China Electric Power Univ., China

15:20-15:40	ThuM04-04
<i>Application of self-tuning control based on generalized minimum variance method in evaporator for ORCS</i>	
Guolian Hou	North China Electric Power Univ., China
Guoqiang Hu	North China Electric Power Univ., China
Rui Sun	North China Electric Power Univ., China
Jianhua Zhang	North China Electric Power Univ., China

15:40-16:00	ThuM04-05
<i>Operator based networked nonlinear control for a Peltier actuated thermal process with time-varying delays</i>	
Shengjun Wen	Tokyo Univ. of Agriculture and Tech., Japan
Mingcong Deng	Tokyo Univ. of Agriculture and Tech., Japan
Shuhui Bi	Tokyo Univ. of Agriculture and Tech., Japan

**16:00 - 16:20 Break**

**Late Afternoon Technical Sessions  
16:20-18:00, Thursday, August 11, 2011**

<b>ThuP01</b>	No. 1 lecture room
<b>Human adaptive mechatronics</b>	Special Session
Organizers: Hongbo Wang	Yanshan Univ., China
Hongnian Yu	Staffordshire Univ., UK
Chair: Hongbo Wang	Yanshan Univ., China
Co-Chair: Hongnian Yu	Staffordshire Univ., UK

16:20-16:40	ThuP01-01
<i>Catheter intervention manipulation system of minimally invasive robotic surgery</i>	
Hongbo Wang	Yanshan Univ., China
Xue Yang	Yanshan Univ., China
Guoqing Hu	Yanshan Univ., China
Zengguang Hou	Chinese Academy of Sciences, China
Hongnian Yu	Staffordshire Univ., UK

16:40-17:00	ThuP01-02
<i>Design, modelling and control of a light touch mechanism</i>	
Y. Dong	Shanghai Jiao Tong Univ., China
Hongnian Yu	Staffordshire Univ., UK
F. Gao	Shanghai Jiao Tong Univ., China

17:00-17:20	ThuP01-03
<i>SEMG feature extraction methods for pattern recognition of upper</i>	

<i>limbs</i>	Feng Zhang	Institute of Automation Chinese Academy of Sciences, China
	Pengfeng Li	Institute of Automation Chinese Academy of Sciences, China
	Zengguang Hou	Institute of Automation Chinese Academy of Sciences, China
	Yixiong Chen	Institute of Automation Chinese Academy of Sciences, China
	Fei Xu	China Univ. of Mining and Tech., China
	Jin Hu	Institute of Automation Chinese Academy of Sciences, China
	Qingling Li	Institute of Automation Chinese Academy of Sciences, China
	Min Tan	Institute of Automation Chinese Academy of Sciences, China

17:20-17:40	ThuP01-04
<i>The petri nets and markov chains approach for the walking robots dynamical stability control</i>	
Luige Vladareanu	Institute of Solid Mechanics of the Romanian Academy, Romanian Univ. of Oradea, Romanian
Gabriela Tont	Staffordshire Univ., UK
Hongnian Yu	Staffordshire Univ., UK
Danut A. Bucur	Institute of Solid Mechanics of the Romanian Academy, Romanian

17:40-18:00	ThuP01-05
<i>Key issues in studying parallel manipulators</i>	
Jianzheng Zhang	Shanghai Jiao Tong Univ., China
Hongnian Yu	Staffordshire Univ., UK
Feng Gao	Shanghai Jiao Tong Univ., China
Xianchao Zhao	Shanghai Jiao Tong Univ., China

<b>ThuP02</b>	No. 2 lecture room
<b>Industrial hazards and system safety</b>	Special Session
Organizers: Zongxiao Yang	Henan Univ. of Science & Tech., China
Jianhai Han	Henan Univ. of Science & Tech., China
Chair: Zongxiao Yang	Henan Univ. of Science & Tech., China
Co-Chair: Jianhai Han	Henan Univ. of Science & Tech., China

16:20-16:40	ThuP02-01
<i>The longest side elimination solution for solving steiner minimum tree problems</i>	
Lili Xu	Henan Univ. of Science and Tech., China
Zongxiao Yang	Henan Univ. of Science and Tech., China
Youlin Shang	Henan Univ. of Science and Tech., China
Tingting Wang	Henan Univ. of Science and Tech., China

16:40-17:00	ThuP02-02
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*Research and development of a simple straight-flow wind tunnel test equipment for vertical axis wind turbines*

Ruitao Deng	Henan Univ. of Science and Tech., China
Lei Song	Henan Univ. of Science and Tech., China
Zongxiao Yang	Henan Univ. of Science and Tech., China
Hanghang Yang	Henan Univ. of Science and Tech., China
Longbiao Wang	Henan Univ. of Science and Tech., China

17:00-17:20 ThuP02-03

*The conditions of frame for the shift-invariant system*

Dewu Yang	Henan Univ. of Science and Tech., China
Xiuge Zhu	Henan Univ., China

17:20-17:40 ThuP02-04

*Application of grey system theory to MTPV system optimization*

Bin Xu	Henan Univ. of Science and Tech., China
Jun Wu	Henan Univ. of Science and Tech., China
Jian Wu	Henan Univ. of Science and Tech., China
Hong Xue	Henan Univ. of Science and Tech., China

17:40-18:00 ThuP02-05

*Structure design and trajectory control on gait rehabilitation training robot system driven by pneumatic actuators*

Jianhai Han	Henan Univ. of Science and Tech., China
Binjing Guo	Henan Univ. of Science and Tech., China
Shushang Zhao	Henan Univ. of Science and Tech., China

**ThuP03** No. 3 lecture room  
**Industrial application** Lecture Session

Chair: Ken Nagasaka Tokyo Univ. of Agriculture and Tech., Japan  
Co-Chair: Hansheng Wu Hiroshima Prefectural Univ., Japan

16:20-16:40 ThuP03-01

*Shortest path algorithm based on city emergency system*

Guiqin Dou	Zhongyuan Univ. of Tech., China
Yansong Zhu	Zhongyuan Univ. of Tech., China
Yumin Han	Zhongyuan Univ. of Tech., China

16:40-17:00 ThuP03-02

*The research and implementation of mid-frequency power supply with high power factor and multi-closed loop feedback*

Fuzhuan Wu	Zhongyuan Univ. of Tech., China
Dongyun Wang	Zhongyuan Univ. of Tech., China
Haibo Ma	Zhongyuan Univ. of Tech., China

17:00-17:20 ThuP03-03

*Off-shore wind power potential evaluation of entire Japan using GIS technology*

Asifujiang Abudureyimu	Tokyo Univ. of Agriculture and Tech., Japan
Yoshiki Hayashi	Tokyo Univ. of Agriculture and Tech., Japan
Ken Nagasaka	Tokyo Univ. of Agriculture and Tech., Japan

17:20-17:40 ThuP03-04

*Design of wireless medical liquid-level monitoring and controlling system based on RF technology*

Pingjun Wei	Zhongyuan Univ. of Tech., China
Jiangbo Zhu	Zhongyuan Univ. of Tech., China
Xiangzhi Wang	Maternal and Child Health Hospital of Zhengzhou, China

17:40-18:00 ThuP03-05

*Research on low-cost vehicular integrated navigation*

Jingyang Wen	Beijing Institute of Tech., China
Xiangyang Lu	Zhongyuan Univ. of Tech., China

**ThuP04** Special lecture room  
**Distributed system** Lecture Session

Chair: Cunchen Gao Ocean Univ. of China, China  
Co-Chair: Ikuro Mizumoto Kumamoto Univ., Japan

16:20-16:40 ThuP04-01

*Modeling and model order reduction of evaporator in organic rankine cycle for waste heat recovery*

Rui Wang	North China Electric Power Univ., China
Xiang Zhao	North China Electric Power Univ., China
Chao Wang	North China Electric Power Univ., China
Ying Li	North China Electric Power Univ., China

16:40-17:00 ThuP04-02

*Variable structure sliding mode control for a class of uncertain distributed parameter systems with time delay*

Cunchen Gao	Ocean Univ. of China, China
Fei Li	Ocean Univ. of China, China
Lin Zhao	Ocean Univ. of China, China

17:00-17:20 ThuP04-03

*The stabilized least-squares nonconforming mixed finite element approximation for the convection-diffusion problem*

Zhiyun Yu	Zhongyuan Univ. of Tech., China
Jinhuan Chen	Zhongyuan Univ. of Tech., China

17:20-17:40 ThuP04-04

*Supervisory predictive control of evaporator in organic rankine cycle (ORC) system for waste heat recovery*

Guolian Hou	North China Electric Power Univ., China
Rui Sun	North China Electric Power Univ., China
Guoqiang Hu	North China Electric Power Univ., China
Jianhua Zhang	North China Electric Power Univ., China

**End of the 1st Day**

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ICAMechS 2011  
Friday, August 12, 2011

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08:40 - 09:40 Special lecture room

**Plenary Speech 3**

Intelligent transportation systems in Taiwan

Tsu-Tian Lee

National Taipei University of Technology, Taiwan

Chair: Hong Wang

The Univ. of Manchester, UK

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09:40 - 10:00 Break

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**Morning Technical Sessions**

10:00-12:00, Friday, August 12, 2011

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**FriA01** No. 1 lecture room  
**Adaptive and advanced control systems - theory and applications** Special Session

Organizers: Toru Yamamoto Hiroshima Univ., Japan

Ikuro Mizumoto Kumamoto Univ., Japan

Chair: Toru Yamamoto Hiroshima Univ., Japan

Co-Chair: Ikuro Mizumoto Kumamoto Univ., Japan

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10:00-10:20 FriA01-01

*Design of a self-adjust controller using multiple local linear models for nonlinear systems*

Shinichi Imai Hiroshima National College of Maritime  
Tech., Japan

Toru Yamamoto Hiroshima Univ., Japan

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10:20-10:40 FriA01-02

*A nonlinear model predictive control using a continuation method and a step input constraint*

Kota Kogiso Tokyo Metropolitan University, Japan

Shiro Masuda Tokyo Metropolitan University, Japan

Takao Sato Univ. of Hyogo, Japan

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10:40-11:00 FriA01-03

*Disturbance attenuation property for random disturbances in two-degree-of-freedom optimal servo control systems*

Yusuki Kishimoto Tokyo Metropolitan University, Japan

Shiro Masuda Tokyo Metropolitan University, Japan

Akira Yano Okayama Univ., Japan

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11:00-11:20 FriA01-04

*Adaptive control scheme for MI-MO systems with input saturations*

Jinxin Zhuo Kyushu Institute of Tech., Japan

Qiang Wang Shanghai Dianji Univ., China

Masahiro Oya Kyushu Institute of Tech., Japan

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11:20-11:40 FriA01-05

*Performance-driven adaptive output feedback control system with a PFC designed via FRIT approach*

Ikuro Mizumoto Kumamoto Univ., Japan

Sota Fukui Kumamoto Univ., Japan

Kenshi Yamanaka Kumamoto Univ., Japan

Sirish L. Shah Univ. of Alberta, Canada

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11:40-12:00 FriA01-06

*Stable fault-tolerant control based on fuzzy performance evaluation*

Masanori Takahashi Tokai Univ. at Kumamoto, Japan

Taro Takagi Kumamoto Univ., Japan

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**FriA02** No. 2 lecture room

**Information techniques for control**

Lecture Session

Chair: Yegui Xiao Prefectural University of Hiroshima., Japan

Co-Chair: Lihua Jiang Northeastern Univ., China

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10:00-10:20 FriA02-01

*A V2G vector control model of electric car charging and discharging machine*

Xiaolei Wang Zhongyuan Univ. of Tech., China

Pan Yan Zhongyuan Univ. of Tech., China

Liang Yang Zhongyuan Univ. of Tech., China

Wendao Yao Zhongyuan Univ. of Tech., China

Guangwen Shi Zhongyuan Univ. of Tech., China

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10:20-10:40 FriA02-02

*Research progress on agronomic parameter estimation based on spectral analysis technology*

Zhe Xu Beijing Univ. of Tech., China

Na Yang Beijing Univ. of Tech., China

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10:40-11:00 FriA02-03

*Spectrum signal de-noising based on wavelet packet*

Zhe Xu Beijing Univ. of Tech., China

Na Yang Beijing Univ. of Tech., China

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11:00-11:20 FriA02-04

*A new hybrid active noise control system in the presence of wideband and narrowband noise components*

Yegui Xiao Prefectural Univ. of Hiroshima, Japan

Jing Wang Beihang Univ., China

Hongyun Wei Akita International Univ., Japan

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11:20-11:40 FriA02-05

*Design of low cost embedded system for automation of a parallel processing plant*

Zahid Ali Siddiqui ED Univ. of Engineering & Tech., Pakistan

Ahmed Munir ED Univ. of Engineering & Tech., Pakistan

M. Faizan Sherazi ED Univ. of Engineering & Tech., Pakistan

S. M. Danish ED Univ. of Engineering & Tech., Pakistan

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11:40-12:00	FriA02-06
<i>Design of PV power station remote monitoring system data acquisition device</i>	
Junming Xiao	Zhongyuan Univ. of Tech., China
Pengcheng Liu	Zhongyuan Univ. of Tech., China
Lingyun Jiao	Zhongyuan Univ. of Tech., China
Haiming Zhu	Zhongyuan Univ. of Tech., China
Yinghu Du	Zhongyuan Univ. of Tech., China

**FriA03** No. 3 lecture room  
**Measurement and sensors** Lecture Session  
 Chair: Bijnan Bandyopadhyay Indian Institute of Tech. Bombay, India  
 Co-Chair: Akira Inoue Okayama Univ., Japan

10:00-10:20	FriA03-01
<i>Effects of back electromotive force in an absolute displacement sensor and improvement using current-feedback-type driver</i>	
Takashi Kai	Tokyo Univ. of Agriculture and Tech., Japan
Masaya Akiyama	Tokyo Univ. of Agriculture and Tech., Japan
Yukinori Nakamura	Tokyo Univ. of Agriculture and Tech., Japan
Shinji Wakui	Tokyo Univ. of Agriculture and Tech., Japan

10:20-10:40	FriA03-02
<i>Remote sensing image fusion for dim target detection</i>	
Zanxia Qiang	Zhongyuan Univ. of Tech., China
Xianfeng Du	Zhongyuan Univ. of Tech., China
Liwu Sun	Zhongyuan Univ. of Tech., China

10:40-11:00	FriA03-03
<i>The design research on the storage structures for large amount of data of the database</i>	
Huaqiang Zhou	Zhongyuan Univ. of Tech., China
Zhihong Yao	Henan Shangqiu Medical College, China
Han Xiao	Henan Electric Power Research Institute, China

11:00-11:20	FriA03-04
<i>Research of physical sediment measurement instruments</i>	
Huanlin He	Zhongyuan Univ. of Tech., China
Yuguo Chen	Zhongyuan Univ. of Tech., China

11:20-11:40	FriA03-05
<i>A new direction on auto-building database application system--model on automatically generating database application system from interface controls descriptions</i>	
Guoliang Tang	Henan Univ. of Traditional Chinese Medicine, China
Feng Yang	Henan Univ. of Traditional Chinese Medicine, China
Zhiyong Zhang	Henan Univ. of Science and Tech., China
Jiexin Pu	Henan Univ. of Science and Tech., China

11:40-12:00	FriA03-06
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<i>Reflective ultrathin membrane model of hydrogen sensor based on multicomponent alloy</i>	
Lujun Cui	Zhongyuan Univ. of Tech., China
Huichao Shang	Zhongyuan Univ. of Tech., China
Gang Zhang	Zhongyuan Univ. of Tech., China
Youping Chen	Zhongyuan Univ. of Tech., China
Zexiang Zhao	Zhongyuan Univ. of Tech., China

**FriA04** Special lecture room  
**Mobile robots** Special Session  
 Organizer: Valeri Kroumov Okayama Univ. of Science, Japan  
 Chair: Valeri Kroumov Okayama Univ. of Science, Japan  
 Co-Chair: Ken Nagasaka Tokyo Univ. of Agriculture and Tech., Japan

10:00-10:20	FriA04-01
<i>Detection of flat ground area by single camera on mobile vehicles</i>	
Masahiro Tanaka	Konan Univ., Japan
Shintaro Onishi	Konan Univ., Japan

10:20-10:40	FriA04-02
<i>Adaptive modular reinforcement learning</i>	
Tsubasa Asano	Okayama Univ. of Science, Japan
Satoshi Yamada	Okayama Univ. of Science, Japan

10:40-11:00	FriA04-03
<i>Localization and position correction for mobile robot using artificial visual landmarks</i>	
Kimihiro Okuyama	Okayama Univ. of Science, Japan
Tohru Kawasaki	Nihon Tokusyu Rozai Co., Ltd., Japan
Valeri Kroumov	Okayama Univ. of Science, Japan

11:00-11:20	FriA04-04
<i>Path planning of robotic fish based on genetic algorithm and modified dynamic programming</i>	
Qian Yang	North China Electric Power Univ., China
Mei Yu	North China Electric Power Univ., China
Shu Liu	North China Electric Power Univ., China
Zhongming Chai	North China Electric Power Univ., China

11:20-11:40	FriA04-05
<i>DECR: dynamic and energy effective clustering based routing algorithm for prolonging the lifetime of wireless sensor networks</i>	
Bahram Lotfimanesh	Islamic Azad Univ., Iran
Nazanin Seyedgogani	Islamic Azad Univ., Iran

11:40-12:00	FriA04-06
<i>Automatic mapping and localization of a tour guide robot by fusing active RFID and ranging laser scanner</i>	
Hung-Hsing Lin	Hsiuping Institute of Tech., Taiwan
Wen-Yu Tsao	Chin-Yi Univ. of Tech., Japan

**12:00 - 13:00 Lunch**



13:00 - 13:30 Break

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**Early Afternoon Technical Sessions**  
**13:30-15:10, Friday, August 12, 2011**

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**FriM01** No. 1 lecture room  
**Mechatronics, dynamic systems and controls in bio-mechanics and biomedical engineering**

Special Session

Organizer: Jin-Oh Hahn University of Alberta, Canada  
Chair: Jin-Oh Hahn University of Alberta, Canada  
Co-Chair: Shuhui Bi Tokyo Univ. of Agriculture and Tech., Japan

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13:30-13:50 FriM01-01

*Wavelet packet entropy based brain activation mapping using near infrared spectroscopy*

Xiao-Su Hu Pusan National Univ., Korea  
Keum-Shik Hong Pusan National Univ., Korea  
Shuzhi Sam Ge The National Univ. of Singapore, Singapore

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13:50-14:10 FriM01-02

*Comparison and evaluation of robotic strength rehabilitation algorithms: isokinetic, isotonic and shared control method*

MinKi Sin Seoul National Univ., Korea  
DaeGeun Park Seoul National Univ., Korea  
Kyu-Jin Cho Seoul National Univ., Korea

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14:10-14:30 ThuM01-03

*System identification and closed-loop control of end-tidal CO<sub>2</sub> partial pressure in mechanically ventilated patients*

Jin-Oh Hahn Univ. of Alberta, Canada  
Guy A. Dumont Univ. of British Columbia, Canada  
J. Mark Ansermino Univ. of British Columbia, Canada

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14:30-14:50 FriM01-04

*Artifact detection and data reconciliation in multivariate ventilatory variables measured during anesthesia: a case study*

Ping Yang Chinese Academy of Sciences, China  
Guy Dumont Univ. of British Columbia, Canada  
Yuan-Ting Zhang Chinese Academy of Sciences, China  
J. Mark Ansermino Univ. of British Columbia, Canada

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14:50-15:10 FriM01-05

*AED training algorithm for the CPR simulator*

In Bae Chang Kangwon National Univ., Korea  
Hyun Woo Cho Kangwon National Univ., Korea  
Seung Hun Jeong BT Inc., Korea  
Seung Jin Yang BT Inc., Korea

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**FriM02** No. 2 lecture room  
**Modeling, control and applications of nonlinear dynamic systems** Special Session

Organizers: Yonghong Tan Shanghai Normal Univ., China  
Xinkai Chen Shibaura Institute of Tech., Japan  
Chair: Yonghong Tan Shanghai Normal Univ., China  
Co-Chair: Xinkai Chen Shibaura Institute of Tech., Japan

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13:30-13:50 FriM02-01

*The high efficiency digital virtue experimental platform for complex mechatronics system*

T. H. Yan China Jiliang Univ., China  
J. Q. Han Huazhong Univ. of Science and Tech., China  
X. S. Xu China Jiliang Univ., China  
X. D. Chen China Jiliang Univ., China

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13:50-14:10 FriM02-02

*Positioning control strategy design for AFM based nanomanipulation systems*

Yongchun Fang Nankai Univ., China  
Xiao Ren Nankai Univ., China  
Yudong Zhang Nankai Univ., China

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14:10-14:30 FriM02-03

*High precision adaptive control for XY-table driven by piezo-actuator*

Xinkai Chen Shibaura Institute of Tech., Japan

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14:30-14:50 FriM02-04

*State-estimation of sandwich systems with dead zone*

Zhupeng Zhou Xi'dian Univ., China  
Yonghong Tan Shanghai Normal Univ., China  
Ruili Dong Shanghai Normal Univ., China  
Yangqiu Xie Xi'dian Univ., China

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14:50-15:10 FriM02-05

*Signal analysis and hysteresis modeling of meridian systems*

Yanyan Gong Shanghai Normal Univ., China  
Ruili Dong Shanghai Normal Univ., China  
Yonghong Tan Shanghai Normal Univ., China

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**FriM03** No. 3 lecture room  
**Discrete time control systems** Lecture Session

Chair: Akira Inoue Okayama Univ., Japan  
Co-Chair: Shan Liang Chongqing Univ., China

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13:30-13:50 FriM03-01

*Stability analysis and robust passive control for uncertain discrete-time singular systems*

Jumei Wei Zhengzhou Univ., China  
Qi Feng Zhengzhou Univ., China  
Rui Ma Zhongyuan Univ. of Tech., China

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13:50-14:10 FriM03-02

*Optimal sliding mode control for linear discrete singular system*

Cunchen Gao Ocean Univ., China  
Nan Xiang Ocean Univ., China

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14:10-14:30 FriM03-03

*Discrete-time sliding mode control using infrequent output measurements*

Bijnan Bandyopadhyay Indian Institute of Tech. Bombay, India  
 P. S. Lal Priya Indian Institute of Tech. Bombay, India

14:30-14:50 FriM03-04

*Super-twisting-like algorithm in discrete time nonlinear systems*

I. Salgado Professional Interdisciplinary Unit of Biotechnology,  
 Mexico  
 S. Kamal Indian Institute of Tech. Bombay, India  
 I. Chairez Professional Interdisciplinary Unit of Biotechnology,  
 Mexico

Bijnan Bandyopadhyay Indian Institute of Tech. Bombay, India  
 L. Fridman National Autonomous University of Mexico, Mexico

14:50-15:10 FriM03-05

*Collaborative fault tolerant control for stochastic distribution systems*

Yuwei Ren Institute of Automation Chinese Academy of  
 Sciences, China  
 Aiping Wang Anhui Univ., China  
 Hong Wang The Univ. of Manchester, UK  
 Northeastern Univ., China

**15:10 - 15:30 Break**

**Late Afternoon Technical Sessions  
 15:30-17:10, Friday, August 12, 2011**

**FriP01** No. 1 lecture room  
**New development in cooperative and distributed control: theory and applications** Special Session

Organizers: Jianhua Zhang North China Electric Power Univ., China  
 Guisheng Zhai Shibaura Institute of Tech., Japan  
 Chair: Jianhua Zhang North China Electric Power Univ., China  
 Co-Chair: Guisheng Zhai Shibaura Institute of Tech., Japan

15:30-15:50 FriP01-01

*Design of evaporator control system using fuzzy sliding mode controller*

Jianhua Zhang North China Electric Power Univ., China  
 Wenfang Zhang North China Electric Power Univ., China  
 Ying Li North China Electric Power Univ., China  
 Guolian Hou North China Electric Power Univ., China

15:50-16:10 FriP01-02

*Dynamic characteristics and predictive control for evaporator*

Jianhua Zhang North China Electric Power Univ., China  
 Ying Li North China Electric Power Univ., China  
 Wenfang Zhang North China Electric Power Univ., China  
 Guolian Hou North China Electric Power Univ., China

16:10-16:30 FriP01-03

*Fuzzy identification based on improved T-S fuzzy model and its application in evaporator*

Jianhua Zhang North China Electric Power Univ., China  
 Ying Li North China Electric Power Univ., China  
 Wenfang Zhang North China Electric Power Univ., China  
 Guolian Hou North China Electric Power Univ., China

16:30-16:50 FriP01-04

*Neural PID control strategy for superheated steam temperature based on minimum entropy*

Jianhua Zhang North China Electric Power Univ., China  
 Fenfang Zhang North China Electric Power Univ., China  
 Hong Wang The Univ. of Manchester, UK

16:50-17:10 FriP01-05

*A notion of generalized graph laplacian and its application to distributed consensus algorithm*

Guisheng Zhai Shibaura Institute of Tech., Japan

**FriP02** No. 2 lecture room  
**Fuzzy and neural methodologies**  
 Special Session

Organizer: Tsu-Tian Lee National Taipei Univ. of Tech., Taiwan  
 Chair: Tsu-Tian Lee National Taipei Univ. of Tech., Taiwan  
 Co-Chair: Masanori Takahashi Tokai Univ. at Kumamoto, Japan

15:30-15:50 FriP02-01

*Characteristic analysis and modeling of a miniature pneumatic curling rubber actuator*

Mingcong Deng Tokyo Univ. of Agriculture and Tech., Japan  
 Aihui Wang Tokyo Univ. of Agriculture and Tech., Japan  
 Shuichi Wakimoto Okayama Univ., Japan  
 Toshihiro Kawashima Tokyo Univ. of Agriculture and  
 Tech., Japan

15:50-16:10 FriP02-02

*An observer-based adaptive type-2 fuzzy-neural controller for a class of MIMO systems with uncertainties*

I-Hsum Li Lee-Ming Institute of Tech., Taiwan  
 Lian-Wang Lee Lunghwa Univ. of Science and Tech., Taiwan  
 Wei-Yen Wang National Taiwan Normal Univ., Taiwan  
 Kai-Wei Hsu Lunghwa Univ. of Science and Tech., Taiwan

16:10-16:30 FriP02-03

*Fuzzy-rule-based behavior control for collaborative human/robot navigation in unknown environments*

Yan-Chang Lee Fu Jen Catholic Univ., Taiwan  
 Zong-Lun Lee Fu Jen Catholic Univ., Taiwan  
 Hisn-Han Chiang Fu Jen Catholic Univ., Taiwan  
 Tsu-Tian Lee Taipei Univ. of Tech., Taiwan

16:30-16:50 FriP02-04

*Direct adaptive control of faulty UAVs based on the paralleled integral*

*and fuzzy control*

Rui Hou Nanjing Univ. of Aeronautics and Astronautics,  
China

Fuyang Chen Nanjing Univ. of Aeronautics and Astronautics,  
China

Wenli Luan Nanjing Univ. of Aeronautics and Astronautics,  
China

16:50-17:10 FriP02-05

*Robust adaptive control for uncertain nonlinear systems with multiple  
state and input time delays*

Cunchen Gao Ocean Univ. of China, China

Yue Ma Ocean Univ. of China, China

**FriP03** No. 3 lecture room

**Advanced techniques for control** Lecture Session

Chair: Xiaolei Wang Zhongyuan Univ. of Tech., China

Co-Chair: Changan Jiang Kagawa Univ., Japan

15:30-15:50 FriP03-01

*Controlling strategy of batteries imbalance based on the SOC and  
voltage*

Xiaolei Wang Zhongyuan Univ. of Tech., China

Liang Yang Zhongyuan Univ. of Tech., China

Pan Yan Zhongyuan Univ. of Tech., China

Guangwen Shi Zhongyuan Univ. of Tech., China

Wendao Yao Zhongyuan Univ. of Tech., China

15:50-16:10 FriP03-02

*Focusing type three gallium arsenide solar cells model in the condition  
of following sun & MPPT control*

Lei Liu Henan Electric Power Bureau of State Grid Corp.,  
China

Erqiang Xu Henan Electric Power Bureau of State Grid Corp.,  
China

Xiaolei Wang Zhongyuan Univ. of Tech., China

16:10-16:30 FriP03-03

*Development of vision based tactile display system using shape memory  
alloys*

Changan Jiang Kagawa Univ., Japan

Keiji Uchida SCA Corp., Japan

Hideyuki Sawada Kagawa Univ., Japan

16:30-16:50 FriP03-04

*Alterable integral control algorithm for shunt active power filter*

Qian Zhang Zhongyuan Univ. of Tech., China

Binbin Wang Zhongyuan Univ. of Tech., China

Haiyun Zhu Zhongyuan Univ. of Tech., China

Haibo Ma Zhongyuan Univ. of Tech., China

16:50-17:10 FriP03-05

*A control system of electric vehicle based on CAN bus*

Xiaolei Wang Zhongyuan Univ. of Tech., China

Wendao Yao Zhongyuan Univ. of Tech., China

Guangwen Shi Zhongyuan Univ. of Tech., China

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**18:30-20:30**

**Conference Banquet (Songshan Hotel)**

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**End of the 2nd Day**

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ICAMechS 2011  
Saturday, August 12, 2011

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**09:30 - 11:00**

Lounge

**Plenary Panel Discussion**

New developments in advanced mechatronic systems

**Organizer:** Mingcong Deng

*Tokyo University of Agriculture and Technology, Japan*

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**11:30 - 13:00**

**Closing Reception**

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**End of the Conference**

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