

CONFERENCE PROGRAM & CONTENTS (Volume 1)

-----Day two: September 1, 2014, Monday-----

Room Conferenza <September 1, Monday>

Opening ceremony
9:30-10:40
Host : Toshio OTAKA

Addressess

- | | |
|---|-------------------------|
| (1) Chair of Organizing Committee (on behalf of Conference Chair) | Prof. Tohru KANADA |
| (2) Chair of Local Organizing Committee (Introduction of the following persons) | Prof. Stanislav HOSNEDL |
| (3) President of the Pilsen Region | Mgr. Václav ŠLAJS |
| (4) Pilsen City Mayor | Mgr. Martin BAXA |
| (5) Rector of the University of West Bohemia | Prof. Ilona MAURITZOVA |
| (6) Director of the Project Pilsen European Capital of Culture 2015 | Ing. Jiri SUCHÁNEK |
| (7) Representative for SKODA TRANSPORTATION | Ing. Josef BERNARD |
| (8) Representative for ASTOS MACHINERY | Ing. Michael ONDRASCHEK |
| (9) Representative for SCHWARZMÜLLER | Dr.-Ing. Petr HOBL |
| (10) Representative for PLZENSKY PRAZDROJ | Mr. Vesselin BARLIEV |

Arias presented by Mgr. Jana HOFFMANNOVÁ with piano accompaniment by Mgr. Hana BEZDĚKOVÁ

Room Conferenza <September 1, Monday>

Special lecture SL-1

10:40~12:20 SL-1

Are We Aware of What We Are Doing in Design Research?
(Design Research between Science and Practice)
Prof. Herbert Birkhofer (Technische Universität Darmstadt)

What are Needs of Industry on Education?
(Link between Industrial Practice and Academic Education)
Ing. Michael Ondraschek (Astos Machinery)

(Contribution is not included, it will be made available as separate copies)

Chairperson : Tohru KANADA (Kanto Gakuin University)

page

1

Room Alto A <September 1, Monday>

Technical Session TS-7

Others Related to Design Engineering and Science and Workshop with the Design Society and the Design Education SIG.

13:30~14:30 TS-7(1)

page

- | | |
|--|----|
| Chairperson
Kiyoshi IOI (Kinki University)
Kazuyuki KOJIMA (Sitama University) | |
| ⁶⁶ Computer Aided Mechanical Assembly Sequence Planning
Michał SAŚIADEK (University of Zielona Góra), Poland | 11 |
| ⁸³ Investigation of fluid intake and necessary drying times of additive manufactured hollow cylinders for further use in vacuum casting
Kevin KUHLMANN (Otto-von-Guericke-University, Magdeburg), Patrick HEBNER, Jonas CRACKAU and Karl-Heinrich GROTE, Germany | 17 |
| ⁴⁰ Thermal Deformation Prediction in Machine Tools by Using Transfer Functions
Yu SETO (Hiroshima Institute of Technology), Fumihiko SUZUMURA and Gonojo KATAYAMA, Japan | 22 |

14:45~15:45 TS-7(2)

Chairperson

Kazuyuki KOJIMA (Sitama University)

Kiyoshi IOI (Kinki University)

2036	Environmental Load Evaluation of Reuse Parts for Automobiles	27
	Masato IWASAKI (Meiji University), Mitsunobu FUJITA, Takao MORI (Toyama Prefectural University), Akihiko SASAKI, Motohiro TAMAKI (NGP Corporation), Akihiko SANNO, Hironori TANI, Akihiro HAYAKAWA, and Masato INOUE (Meiji University), Japan	
1003	Design Improvement of Machine Tools by Integration of Cutting Process Model into Finite Element Analysis	31
	Gerhard KEHL (University of Applied Sciences Esslingen), Germany	
1072	A Survey of Cryptographic Protocols	35
	Mervat Mikhail (Alexandria University), Yasmine Abouelsoud and Galal El Kobrosy, Egypt	

Technical Session TS-4
CAD/CAM/CAE

16:00~17:00 TS-4(1)

Chairperson

Gerhard KEHL (University of Applied Sciences Esslingen)

Michał SAŚIADEK (University of Zielona Góra)

2054	The Principle of Duality in Data Structures and Euler Operators of Solid Modelers (The Quarter-edge Data Structure)	41
	Masatoshi NIIZEKI (Osaka Electro-Communication University), Japan	
1006	Compression of Simulation Results Database Using Tensor Decomposition	47
	Yixiang FENG (Hitachi, Ltd), Japan	
1043	Structure Design for the Elastic Body of a Six-axis Wrist Force Sensor	53
	Zheng-shi LIU (Hefei University of Technology), Yi-min LU, En-wei CHEN, and Yong WANG, China	

Technical Session TS-2
Design and Development

17:15~18:15 TS-2(1)

Chairperson

Michał SAŚIADEK (University of Zielona Góra)

Taro FUJIKAWA (Tokyo Denki University)

2047	Controller Design for Air-conditioners Considering of Occupant's Requests by using Bayesian Network	58
	Kazuyuki KOJIMA (Saitama University) and Takahiro OKUMURA (Saitama Medical University), Japan	
2012	Design of an Active Controlled Caster Aiming at Cart with Low Crashes/Vibrations	63
	Kiyoshi IOI (Kinki University), Atsushi SUDA (Yuei Caster co.ltd) and Masahiko YAMAMOTO, Japan	
2048	Haptic Feedback by One-way Resisting Torque to Assist Manipulation of Control Input with a Lever	69
	Kazunori KAEDE (Saitama University) and Keiichi WATANUKI, Japan	

Room Alto B <September 1, Monday>

Technical Session TS-3
Design and Production

13:30~14:30 TS-3(1)

Chairperson

Koki KIKUCHI (Chiba Institute of Technology)

Taichi SHIIBA (Meiji University)

2060	Camera Arm System for Disaster Response Robots (1st Report: Design Strategy and Evaluation of Prototype Development)	74
	Hideaki YAMATO (CHIBA Institute of Technology), Kengo TODA, Masaharu SHIMIZU, Takashi KODACHI, Tomoaki YOSHIDA, Takeshi NISHIMURA and Takayuki FURUTA, Japan	
2068	Camera Arm System for Disaster Response Robots (2nd Report: A Collision Protection Mechanism for Real-world Missions)	80
	Kengo TODA (Chiba Institute of Technology), Hideaki YAMATO, Masaharu SHIMIZU, Takashi KODACHI, Tomoaki YOSHIDA, Takeshi NISHIMURA and Takayuki FURUTA, Japan	
2031	Riding Comfort Evaluation of Railway Vehicle by a Simulator	86
	Kei YASUMURO (Meiji University), Yong HAN, Ryosuke GOTO (Tokyo Metro Co., Ltd.), Yuichi NAKAZATO, Yasuyuki MIYAJIMA (TOSHIBA Corp.) and Haruo SHIMOSAKA (Meiji University), Japan	

4:45~15:45 TS-3(2)

Chairperson

Taichi SHIIBA (Meiji University)

Koki KIKUCHI (Chiba Institute of Technology)

⁰²⁰ Multi-objective Optimization of a CNT/Polymer Nanocomposite Automotive Drive Shaft	92
M. H. SHOJAEFARD (Iran University of Science and Technology), A. KHALKHALI and Sh. KHAKSHOURNIA, Iran	
⁰⁸⁶ Development of Quadruped Achieving High Terrain Adaptability (DOF Configuration Consideration for Redundant Leg Structures)	98
Takuya KITAMURA (Chiba Institute of Technology) and Yusuke OTA, Japan	
⁰¹⁶ Modeling and Simulation of Quadruped Form Multi-purpose Module System MMS for Stability Control	104
Shinya TACHINO (Aichi Institute of Technology), Takuya SUGIURA, Tasuku HATAKEYAMA, Masaru URUSHIBATA and Yoshihisa UCHIDA, Japan	

6:00~17:00 TS-3(3)

Chairperson

Takahiro DOI (Kanazawa Institute of Technology)

Hideaki YAMATO (Chiba Institute of Technology)

⁰⁵⁸ Evaluation of Driver Characteristics According to Running Condition Using Driver Model	110
Ryuta ISHIZAKI (Meiji University), Kazuhiro MORIHARA and Taichi SHIIBA, Japan	
⁰⁷⁹ Design of Quadruped Walking Robot with Spherical Shell	116
Takeishi AOKI (Chiba Institute of Technology) and Kazuki OGIHARA, Japan	
⁰¹⁷ Soft Landing Condition for Stair-Climbing Robot with Hopping Mechanism	122
Akira KAMEI (Chiba Institute of Technology), Masaya JINNO, Naoya CHISHIMA, Kenji SATO (Shibaura Holdings, Inc.), and Koki KIKUCHI (Chiba Institute of Technology), Japan	

7:15~17:55 TS-3(4)

Chairperson

Hideaki YAMATO (Chiba Institute of Technology)

Yoshihisa UCHIDA (Aichi Institute of Technology)

⁰⁸² Methodical Design of a Trailer Range Extender for Improving the Range of electric Vehicles	128
Carsten HAUGWITZ (Otto-von-Guericke-University, Magdeburg), Kevin KUHLMANN, Stefan LÜDECKE and Karl-Heinrich GROTE, Germany	
⁰⁷³ A Study of Robustness in Handling Performance for Light Weight Vehicle	132
Yusuke UDAGAWA (Meiji University), Kyosuke TAKEKOSHI and Taichi SHIIBA, Japan	

Room Basso A <September 1, Monday>

Technical Session TS-1
Design Methodology

3:30~14:30 TS-1(1)

page

Chairperson

Masato INOUE (Meiji University)

JIRKOVÁ Hana (University of West Bohemia)

⁰⁸⁹ Property Driven Innovation of a Technical Product	138
Stanislav HOSNEDL (University of West Bohemia), Martin Kopecky, Josef Dvorak, Ladislav Zich (MemBrain s.r.o.), Czech Republic	
⁰⁸⁸ Theory Based Management and Software Support of Property Driven Designing of Technical Products	144
Stanislav HOSNEDL (University of West Bohemia), Czech Republic	
⁰⁸¹ The Modular Design in Consideration of Influence of Noise	150
Saimon GOKYU (Keio University), Hideki AOYAMA, and Toshiharu MIWA (Hitachi, Ltd.), Japan	

4:45~15:45 TS-1(2)

Chairperson

Stanislav HOSNEDL (University of West Bohemia)

Hideki AOYAMA (Keio University)

⁰⁸⁰ Project Management enriched by Engineering Design Science during the design process of a technical product	156
KROTÁK Stanislav (University of West Bohemia), ŠTÁDLER Ctibor, ŠIMLOVÁ Martina, JIRKOVÁ Hana, Czech Republic	
⁰⁷¹ Robust Multiple Optimization for Adjustable Mechanisms	162
Masatoshi Muramatsu (Tokai University), Keigo Yamamoto and Takao Kato, Japan	
⁰⁶⁷ Improving Reliability of Designed Technical Products Using FMEA	168
Michał SAŚIADEK (University of Zielona Góra) and Wojciech BABIRECKI, Poland	

16:00~17:00 TS-1(3)

Chairperson

Hideki AOYAMA (Keio University)

Stanislav HOSNEDL (University of West Bohemia)

²⁰³⁷ An Upgrade Product Design Method for Satisfying Performance Criteria, Environmental Load, and Cost 174

Shuho YAMADA (Meiji University), Tetsuo YAMADA (The University of Electro-Communications), Stefan BRACKE (University of Wuppertal), and Masato INOUE (Meiji University), Japan

²⁰³² Design Method for Obtaining Diverse Possible Design Solution Sets to Adapt to Changes in Boundary Conditions 180

Shunsuke IJIMA (Meiji University), Masaki TAKAHASHI (Keio University), and Masato INOUE (Meiji University), Japan

¹⁰²² Evaluation of a New Concept of a Knowledge based Environment 186

Robert FURIAN (Volkswagen AG), Frank VON LACROIX, Ana CORREIA (Institut fuer angewandte Systemtechnik Bremen), Stefan FALTUS, Myrna FLORES (Ecole Polytechnique Fédérale de Lausanne (EPFL), College of Management of Technology) and Karl-Heinrich GROTE (Otto-von-Guericke-University, Magdeburg), Germany

17:15~18:15 TS-1(4)

Chairperson

Masato INOUE (Meiji University)

Takeo KATO (Tokai University)

¹⁰⁰² Case Example of Systematic Design Engineering – Linear Friction Test Equipment 192

W. Ernst EDER (Royal Military College of Canada), Canada

¹⁰⁴⁹ A New Concept of Volumetric Error Analysis of Machine Tools based on Abbé Principle 198

Kuang-Chao FAN (National Taiwan University), Han-Ming YEN and Kun-Ying LI (Industrial Technology Research Institute), R.O.C. (Taiwan)

Room Basso B <September 1, Monday>

Poster and Workshop Sessions PWS

9:00 ~18:00 Poster Session

- | | |
|--|------|
| - Japan in the Globe | page |
| Yuuki MOMIYAMA (Kanto Gakuin University) | 205 |
| - Design of the Optimized Part with 3D Printer | |
| Emil CERNY (University of West Bohemia) | 206 |