



The 23rd Symposium on Theory of Machines and Mechanisms

Date: June 9, 2017

Place: Multipurpose Room, 3rd Floor, Ellipse Bldg.,
Tokyo University of Agriculture and Technology (Koganei Campus)
2-24-16 Nakamachi, Koganei-shi, Tokyo 184-8588
(8 min. walk from Higashikoganei Station, JR Chuo Line)

Program:

8:40 Opening Address by Atsuo TAKANISHI
President, Jc-IFTOMM (Waseda Univ.)

Special Session 1 : Humanoid Robots and Related Technologies (8:45-9:45)
Moderator: Atsuo TAKANISHI (Waseda Univ.)

Chair: Atsuo TAKANISHI (Waseda Univ.)

8:45 Study on Robot that can Grow Like Humans
-Modeling of Human Physical Growth and Variable Height and Weight Mechanism-
*Hiroaki HANAI (Graduate Student, Kogakuin Univ.), Hideaki TAKANOBU (Kogakuin Univ.),
Takayuki MATSUZAWA, Kenji SUZUKI and Hirofumi MIURA

9:00 Passive Device for Bipedal Robots to Walk on Uneven Terrain
*Kota SUZUI (Graduate Student, TUAT) and Gentiane VENTURE (TUAT)

9:15 Vital Signs Expression by Patient Robot
*Junya ISHI (Graduate Student, Kogakuin Univ.), Hideaki TAKANOBU (Kogakuin Univ.),
Toshifumi NAKAJIMA, Kenji SUZUKI and Hirofumi MIURA

9:30 Research on Biped Running Robot Utilizing Pelvic Movement
-15th Report: Running Speed Estimation Using Joint Angle Sensor-
*Mutsuki OHARA (Graduate Student, Waseda Univ.), Takaya ISOMICHI, Takuya OTANI (Waseda Univ.),
Kenji HASHIMOTO, Hun-Ok LIM (Kanagawa Univ.) and Atsuo TAKANISHI (Waseda Univ.)

9:45 Coffee Break

General Session: (10:00-11:00)
Chair: Nobuyuki IWATSUKI (Tokyo Tech.)

10:00 Research about Dynamical Characteristics and Biomechanics of Double Leg Circles on Pommel Horse
*Ayaka YAMADA (Graduate Student, Univ. of Tokyo), Yosuke IKEGAMI and Yoshihiko NAKAMURA
(Univ. of Tokyo)

10:15 A Study on an Effective Shape of the Cylindrical Cam for Jumping Motion of Tiny Mobile Robot
*Katsuaki TANAKA (Graduate Student, Waseda Univ.), Sho INOUE, Hiroya YOKOYAMA,
Satoshi OKABAYASHI (Bunka Gakuen Univ.), Qing SHI (Beijing Institute of Technology),
Yusuke SUGAHARA (Tokyo Tech.) and Atsuo TAKANISHI (Waseda Univ.)

- 10:30 Variable Velocity Function of Swarm Robots
 *Yo OAKU (Graduate Student, Kogakuin Univ.), Hideaki TAKANOBU (Kogakuin Univ.), Satoru HOUKITA, Takuya FUJIMORI, Kenji SUZUKI and Hirofumi MIURA
- 10:45 Predictive Control for a Manipulator Robot with Robustification by Youla Parameter
 *Liz Rincon ARDILA (TUAT), Takuma KATSUMATA and Gentiane VENTURE
- 11:10 Jc-IFTToMM Annual Meeting 2017 (11:10-12:00)
 Address from president:
 Atsuo TAKANISHI (Waseda Univ.)
 Chair : Gentiane VENTURE (TUAT)
- 12:00 Lunch Break
- Industrial Technology Session (poster session):** (13:00-13:45)
 Factory Centered Principle -Robot Development Team-
 *Koichi ISHIHARA (Toshin Seisakusho)
 Baseball Batting Motion Analysis using nMotion musculous
 *Shinichi MASUDA (nac Image Technology Inc.)
 Design and Prototyping for Developing New Products - Development of Rehabilitation Device for Ankle Joint -
 *Toshihiro ICHINOSEKI (Abetechnosystem Corp.)
- 13:15 Coffee Break
- Special Session 2 : Techniques to Analyze and Design Mechanisms** (14:00-16:45)
 Moderator: Yukio TAKEDA (Tokyo Tech.)
 Chair: Yukio TAKEDA (Tokyo Tech.)
- 14:00 Development of High Output and High Rigidity Hydraulic Pump Using Fine Ceramics as Structural Material
 *Mitsuo KOMAGATA (Graduate Student, Univ. of Tokyo), Shunsuke SATO, Hiroshi KAMINAGA (Univ. of Tokyo) and Yoshihiko NAKAMURA
- 14:15 Research on Oral Surgical Retractor
 *Hikaru KITAGAWA (Graduate Student, Kogakuin Univ.), Hideaki TAKANOBU (Kogakuin Univ.), Yuta SHIMOMAKI, Kenji SUZUKI, Hirofumi MIURA and Akira SHIMIZU (Tokyo Medical Univ.)
- 14:30 Development of Flexible Actuator with Bag-like Structure
 *Daiki YASUI (Graduate Student, Tokyo Tech.), Takashi IKEDA, Hitoshi KIMURA (Tokyo Tech.) and Norio INOU
- 14:45 Coffee Break
 Chair: Hideaki TAKANOBU (Kogakuin Univ.)
- 15:00 Kinematic Clearance Sensitivity Analysis of Parallel Mechanism during Acceleration based on d'Alembert's Principle
 *Masumi OHNO (Graduate Student, Tokyo Tech.) and Yukio TAKEDA (Tokyo Tech.)
- 15:15 Mobile Robots on Construction Sites: Challenges and Developments
 *Tim DETERT (RWTH Aachen Univ.), Burkhard CORVES, Mathias HÜSING, Jean-Christopher FAUROUX (SIGMA Clermont) and Francesco BECCHI (Danieli Telerobot Labs Srl)

15:30 Design and Analysis of an Improved Jansen Leg Mechanism Capable of Passively Adapting to Obstacles
*Alexander SZIGETI (Graduate Student, Tokyo Tech.), Daisuke MATSUURA (Tokyo Tech.) and Yukio TAKEDA

15:45 Coffee Break
Chair: Yoshihiko NAKAMURA (Univ. of Tokyo)

16:00 Jacobian Analysis of a 3-UPR Parallel Manipulator for a Robotic Leg Application
*Matteo RUSSO (Univ. of Cassino and Southern Latium), Yukio TAKEDA (Tokyo Tech.) and Marco CECCARELLI (Univ. of Cassino and Southern Latium)

16:15 A Survey on Fully -Parallel Delta-like Robots with Articulated and Unarticulated Platforms
*Jan Brinker (RWTH Aachen Univ.), Burkhard CORVES, Mathias HÜSING and Yukio TAKEDA (Tokyo Tech.)

16:30 Transmissibility and Singularity Analysis of 3-PRS Parallel Mechanism Based on Pressure Angle
*Xinghai LIANG (Graduate Student, Tokyo Tech.) and Yukio TAKEDA (Tokyo Tech.)

16:45 Coffee Break

Special Lectures (17:00-18:00)
Chair: Yukio TAKEDA (Tokyo Tech.)

Lecture 1:

Concepts of IFToMM D-A-CH Workshop

Lecturer: Prof. Mathias HÜSING

Dept. of Mechanism Theory and Dynamics of Machines, RWTH Aachen University, Germany

Lecture 2:

On Actual Developments of Mechanism Science in Germany (D), Austria (A) & Switzerland (CH) based on IFToMM D-A-CH Workshops

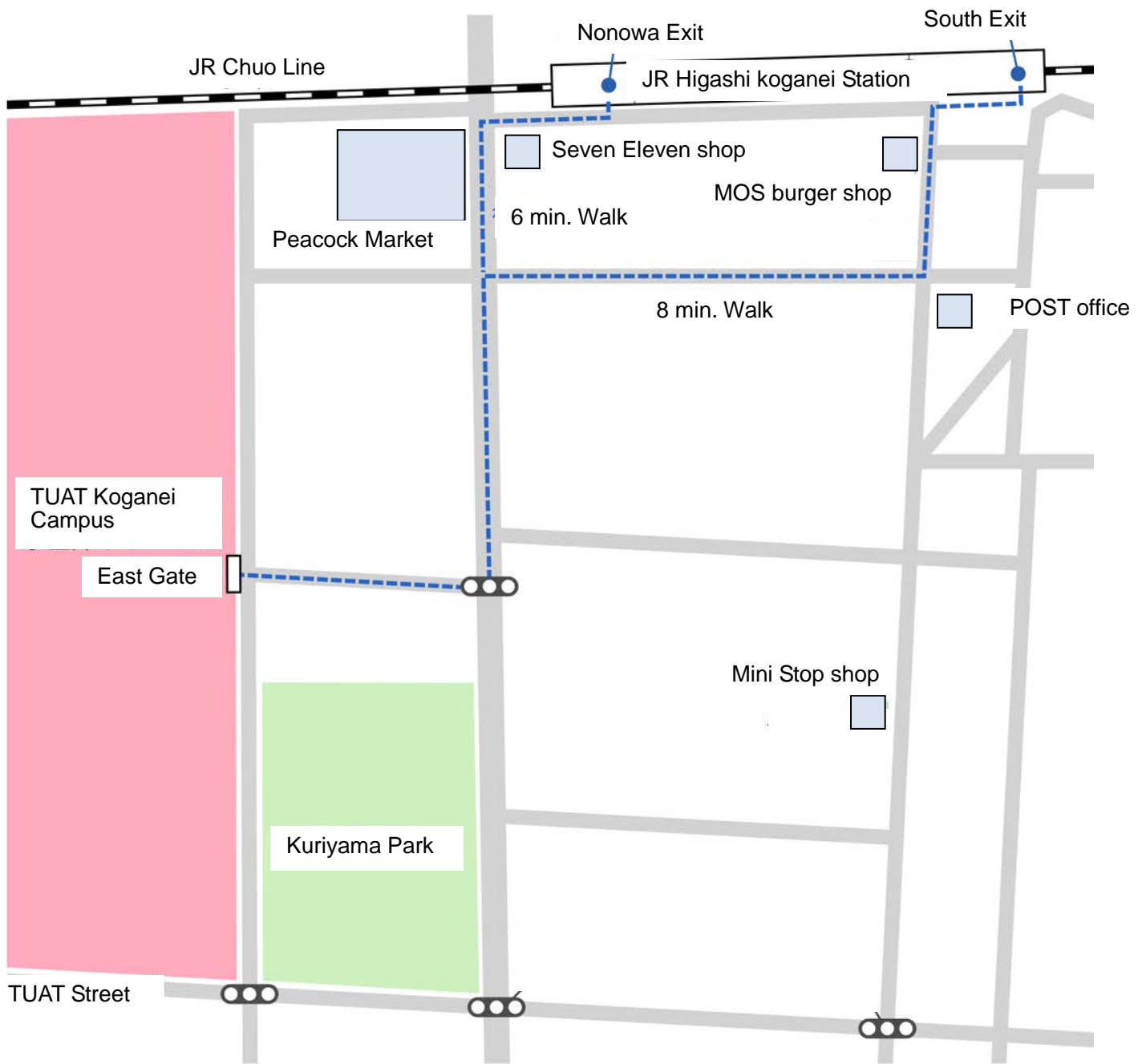
Lecturer: Prof. Burkhard CORVES

Dept. of Mechanism Theory and Dynamics of Machines, RWTH Aachen University, Germany

18:00 Closing Address by Nobuyuki IWATSUKI
Vice President, Jc-IFTToMM (Tokyo Tech.)

18:10-19:10 TUAT lab tour (You can visit 3 labs.)

19:10 Award ceremony and technical discussions (19:10-20:20)
at Multipurpose Room, 3rd Floor, Ellipse Bldg.
The fee is 5,000 JPY and free for students.



Way to TUAT Koganei Campus

Koganei Campus

←Musashi Koganei

JR Chuo Line

Higashi Koganei→



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| 1 | Building 1: Department of Applied Chemistry, Department of Organic and Polymer Materials Chemistry and Department of Chemical Engineering | 7 | Building 7: Department of Computer and Information Science | 14 | New Building 1: Department of Applied Chemistry and Department of Electrical and Electronic Engineering | 24 | Center for Environment and Safety |
| 2 | Building 2: Department of Mechanical Systems Engineering | 8 | Building 8: Information Media Center | 15 | Lecture Hall Building for the Faculty of Engineering | 25 | Center for Design and Manufacturing |
| 3 | Building 3: Department of Electrical and Electronic Engineering | 9 | Building 9: Department of Mechanical Systems Engineering | 16 | Main Building: Department of Industrial Technology and Innovation and Administration Office | 26 | Gymnasium |
| 4 | Building 4: Department of Organic and Polymer Materials Chemistry, Department of Chemical Engineering, Department of Applied Physics, and Department of Industrial and Technology and Innovation | 10 | Building 10: Department of Biotechnology and Life Science, Department of Applied Chemistry, and Department of Computer and Information Sciences | 17 | Koganei Library | 27 | Faculty of Engineering RI Laboratory Building |
| 5 | Building 5: Department of Chemical Engineering, Department of Electrical and Electronic Engineering, and Instrumentation Analysis Center | 11 | Building 11: Department of Biotechnology and Life Science and Department of Mechanical Systems Engineering | 18 | Graduate School of Bio-Applications and Systems Engineering (BASE) | 28 | Koganei International House |
| 6 | Building 6: Department of Mechanical Systems Engineering | 12 | Building 12: Department of Biotechnology and Life Science, Department of Organic and Polymer Materials Chemistry, Department of Mechanical Systems Engineering, and Department of Computer and Information Sciences | 19 | Faculty of Engineering Multipurpose Hall, Co-op Store and Cafeteria | 29 | Male Dormitory "Keyaki" |
| | | 13 | Building 13: International Center | 20 | CAD/CAM Laboratory | 30 | Female Dormitory "Sakura" |
| | | | | 21 | University Research Administration Center – URAC (Venture Business Laboratory / Joint Research Facilities / Incubation Facilities) | 31 | Staff Housing No. 2 |
| | | | | 22 | Nature and Science Museum | 32 | The 140 th Year Commemorative Building (Ellipse) |
| | | | | 23 | Research Center for Science and Technology | 33 | Research Center for Next Generation Capacitor |