



The 24th Symposium on Theory of Machines and Mechanisms

Date: June 1 (Fri), 2018

Place: Nakashima hall, Food Science bldg., Yayoi campus,
The University of Tokyo 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-8657.
(4 min. walk from Todaimae Station, Tokyo Metro Nanboku Line, 5 min. walk from Nezu Station,
Tokyo Metro Chiyoda Line, 12 min. walk from Hongo 3-chome Station, Tokyo Metro Marunouchi Line)

Program:

9:20 Opening Address by Atsuo TAKANISHI
President, Jc-IFTOMM (Waseda Univ.)

Session 1 : Kinematics (9:30 - 10:50)
Chair: Yoshihiko NAKAMURA (Univ. of Tokyo)

9:30 *Development of Disaster Response Robot for Extreme Environment -22nd Report: Realization of Boring Work with Electric Drill Using End-effector for the Locomotion and Simple Work of a Four-limbed Robot -*
*Takashi MATSUZAWA (Graduate Student, Waseda Univ.), Asaki IMAI, Nobuaki SAKAI, Yuki YOSHIDA,
Koki YAMAGUCHI, Xiao SUN, Kenji HASHIMOTO (Waseda Univ.) and Atsuo TAKANISHI

9:50 *A 7R Linkage for Ankle Rehabilitation: Kinematics and Force Analyses*
*Chih-Ching HSIEH, Chin-Hsing KUO (National Taiwan University of Science and Technology),
Daisuke MATSUURA (Tokyo Tech) and Yukio TAKEDA

10:10 *A General Iterative Method for Inverse Kinematics of 3-Limb Parallel Mechanism with 3 DOF Based on Kinematically Equivalent Mechanism*
*Xinghai LIANG (Graduate Student, Tokyo Tech) and Yukio TAKEDA (Tokyo Tech)

10:30 *Kinematic Characterization of an Extendable Mechanism Based on an Origami Structure While Considering Its Stability*
*Hiroshi MATSUO (Graduate Student, Tokyo Tech), Daisuke MATSUURA (Tokyo Tech), Yusuke SUGAHARA
and Yukio TAKEDA

10:50 Coffee Break

Special Lecture 1: *Towards Autonomous and Safe Human-Robot/Robot-Robot Cooperative Tasks* (11:00-12:00)
Lecturer: Prof. Wael SULEIMAN
Electrical and Computer Engineering Department, Université de Sherbrooke, Canada
Chair: Gentiane VENTURE (TUAT)

Jc-IFTOMM Annual Meeting 2018 (12:00-13:30)
Address from president:
Atsuo TAKANISHI (Waseda Univ.)
Chair : Gentiane VENTURE (TUAT)

Session 2 : Humanoid Robots

(13:30 - 14:50)

Chair: Atsuo TAKANISHI (Waseda Univ.)

- 13:30 *Growing Humanoid Robot and Rolling over Motion*
*Tomohiro KANAGAWA(Graduate Student, Kogakuin Univ.), Hideaki TAKANOBU (Kogakuin Univ.), Hiroaki HANAI, Kenji SUZUKI and Hirofumi MIURA
- 13:50 *Walking Control of EHA Driven Humanoid Robot HYDRA*
*Kazuya MUROTANI (Graduate Student, Univ. of Tokyo), Tianyi KO, Ko YAMAMOTO (Univ. of Tokyo), Yoshihiko NAKAMURA
- 14:10 *Whole-body Motor Control Performance Evaluation of the Hydrostatically Driven Humanoid "HYDRA"*
*Tianyi KO (Graduate Student, Univ. of Tokyo), Kazuya MUROTANI, Ko YAMAMOTO (Univ. of Tokyo), Yoshihiko NAKAMURA
- 14:30 *Using Jamming Phenomenon in MR Fluid to Design a Finger Assistive Device*
*Misato BABA (TUAT) and Gentiane VENTURE
- 14:50 Coffee Break

Special Lecture 2: *Organic Mechanical Materials Toward Soft-Robotics*

(15:00-16:00)

Lecturer: Prof. Hideko KOSHIMA

Research Organization for Nano & Life Innovation, Waseda University.

Chair: Yoshihiko NAKAMURA (Univ. of Tokyo)

16:10 Closing Address by Nobuyuki IWATSUKI

Vice President, Jc-IFTtoMM (Tokyo Tech.)

Laboratory tour

(16:30-17:30)

17:30 Technical networking event

(17:30-19:30)

Room 31A, 3rd floor of Faculty of Engineering Bldg.2.

The fee is 5,000 JPY and free for students.



Symposium site (Food science bldg., Yayoi Campus, the University of Tokyo)