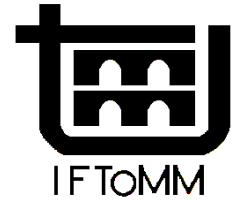# The 5th International Jc-IFToMM Symposium

(in conjunction with **The 28th Jc-IFToMM Symposium** on Theory of Machines and Mechanisms)

Date: July 16 (Saturday), 2022
Venue: Kyoto University, Katsura Campus (Kyoto, Japan)

Program:

Opening Ceremony

9:00   Opening address by Nobuyuki Iwatsuki (Tokyo Tech.), President of Jc-IFToMM

Session 1   Machine Elements and Materials   (9:05 - 10:25)
Chair: Hitoshi Kimura (Tamagawa Univ.)

9:05   上下の転がり溝との接触位置に支配される鋼球の運動解析
Analysis of a motion of a steel ball ruled by contact with grooves on upper and lower tracks
*Yoshiyuki Oyama, D. Matsuura, T. Kobayashi (Tokyo Tech.)
(*Presentation and paper in Japanese*)

9:25   折り紙に着想を得た転倒防止装置の可搬性と伸展特性に基づく設計
Design of origami-inspired fall prevention device based on portability and extension characteristics
*Ryunosuke Natsume, K. Hoshiba, Y. Sugahara, Y. Takeda (Tokyo Tech.), S. Shimono (The KAITEKI Institute, Inc.)
(*Presentation in English, paper in Japanese*)

9:45   Analysis on contact ratio of noncircular gear
*Hikaru Koyama, M. Komori (Kyoto Univ.)

10:05   Elastic modulus adjustment of a thermoresponsive biological tissue phantom for safety assessment of energy devices
*Minako Hirabayashi, K. Yamamoto, K. Hara, E. Kobayashi, I. Sakuma (Univ. Tokyo), Y. Akagi (Tokyo Univ. of Agriculture and Tech.)

10:25 - 10:40   Break

Session 2   Modelling   (10:40 - 12:00)
Chair: Akio Yamamoto (Univ. Tokyo)

10:40   Discrimination of normal and abnormal lung sounds using auscultation data on a microcomputer
*Shunsuke Komizunai, T. Fujiwara, A. Konno (Hokkaido Univ.)

11:00   Adaptive landing of an underactuated leg mechanism constrained with springs
*Yuma Yokota, N. Iwatsuki (Tokyo Tech.)

11:20   Effect of dynamic loads on the gravity compensation design of serial robots
*Vu Linh Nguyen (National Chin-Yi Univ. of Technology), C-H. Kuo (Univ. of Wollongong)

11:40   Dynamic modeling and parameter identification of an elastic rod for analyzing real fly-fishing
*Ryosuke Hakamata, M. Endo, Y. Sugahara, Y. Takeda (Tokyo Tech.), H. Ishii (Waseda Univ.)

12:00 - 13:00   Lunch Break
13:00 - 14:15   General Assembly of Jc-IFToMM (Jc-IFToMM members only)
14:15 - 14:30   Break

Session 3   Mechanisms: Synthesis and Simulation   (14:30 - 15:30)
Chair: Mitsuru Endo (Tokyo Tech.)

14:30   A concept of 3D super multi DOF robot arm based on electrostatic layer jamming
*Haitao Wang, S. Yoshimoto, A. Yamamoto (Tokyo Univ.)

14:50   A preliminary synthesis of a light and compact wearable cable-driven parallel robot for wrist joint rehabilitation
*Giovanni Colucci, A. Botta, M. Verutti, C. Visconte, G. Quaglia (Politecnico di Torino), Y-C. Liu, Y. Takeda (Tokyo Tech.)

15:10   Graphic user interface for motion, simulation and evaluation of a parallel cable driven robot
*Vincenzo Pugliese (University of Calabria), F. Ennaiem, J. Sandoval (University of Poitiers), G. Carbone (University of Calabria), M. A. Laribi (University of Poitiers)

15:30 - 15:45   Break

Session 4   Medical Applications   (15:45 - 16:45)
Chair: Takashi Harada (Kindai University)

15:45   The development of skill evaluation system for laparoscopic surgical procedure
*Koki Ebina, T. Abe, K. Hotta, M. Higuchi, J. Furumido, N. Iwahara, M. Kon, S. Komizunai, Y. Kurashima, H. Kikuchi, R. Matsumoto, T. Osawa, S. Murai (Hokkaido Univ.), T. Tsujita (National Defense Academy of Japan), K. Sase (Tohoku Gakuin Univ.), X. Chen (Hirosaki Univ.), N. Shinohara, A. Konno (Hokkaido Univ.)

16:05   An experimental characterization of respiration biomechanics by a Holter device
*Matteo Aquilini, M. Ceccarelli, M. D'Onofrio, V. Ambrogi (University of Rome Tor Vergata)

16:25   DOT PAQUITOP: a mobile robotic assistant for the hospital environment
*Luigi Tagliavini, L. Baglieri, A. Botta, G. Colucci, P. Cavallone, C. Visconte, G. Quaglia (Politecnico di Torino)

16:45 - 17:00   Break

Session 5   Machine Dynamics   (17:00 - 18:00)
Chair: Daisuke Matsuura (Tokyo Tech.)

17:00   Effective approach to modeling the hydrodynamic response of a multibody system with suspended load in the time domain
*Oleg Makarov, T. Harada (Kindai Univ.)

17:20   Nonlinear model predictive control of omnidirectional robots using a spraying unit
*Rocco Galati, G. Mantriota, G. Reina (Polytechnic University of Bari)

17:40   Discriminant analysis of the vibrational dynamics of a gas microturbine with different fuels
*Mario Spirto, S. Savino, G. Quaremba, C. Cosenza, A. Nicolella, V. Niola (University of Naples Federico II)

18:00 - 18:15   Break

Closing Ceremony
18:15   Partnership ceremony between IFToMM Italy and Jc-IFToMM
18:25   Young Investigator Fund, Best Paper Award Ceremony
                          Chair: Atsushi Konno (Hokkaido Univ.)
18:35   Closing address by Masaharu Komori (Kyoto Univ.), Vice-president of Jc-IFToMM