

特別講演・計算工学大賞 2022 授賞式

The JSCES Grand Prize 2022 Lecture and Ceremony

2022 年度計算工学大賞を受賞された韓国・ソウル国立大学の Yoon Young Kim 教授の特別講演及び計算工学大賞授賞式を開催します。参加・聴講は無料です。多数のご参加をお待ちしております。

Date	16:00 – 17:15 on Thursday, June 1, 2023.
Venue	Leo Esaki Main Convention Hall, Tsukuba International Congress Center, 2-20-3 Takezono, Tsukuba, Ibaraki 305-0032, Japan.
Chair	Prof. Dr.-Ing. Junji Kato (Nagoya University, Japan)

Computational autonomous synthesis of robot mechanisms – challenge and response

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Abstract

Mechanisms are mechanical components that convert an input motion (force) to the desired, possibly complicated, motion (force). Undoubtedly, they critically affect the mechanical performance of machines or robots that are equipped with them. However, it has been so far impossible to generate or design mechanisms without any **initial** design especially if they are rigid-body mechanisms allowing large motion and high-force transmission. Unlike structural design problems that are now tackled by the structural topology optimization method, the design of rigid-body mechanisms has still remained impregnable.

In this talk, I will answer the following questions: 1) “Why is there no computational method of autonomous mechanism synthesis that simultaneously determines mechanism topology and dimensions?”, 2) “What different thinking is needed in exploring this new approach - the autonomous mechanisms synthesis?”, and 3) “Can this method be practically helpful in the design of robot mechanisms such as wearable exoskeletons and transformable wheel robots?”