

生物物理セミナー / **Informal Biophysics Seminar**

Date: Nov 22 (Fri), 2024 14:00-15:00

Place: Room A454 or Zoom (Hybrid)

(Please make a registration through the link below.)

Speaker: **Ueda Yuika**

JSPS Research Fellowship for Young Scientists

Affiliation: Division of bioengineering,

Graduate School of Engineering Science, Osaka University

Deguchi laboratoy

Title: **Thermodynamics and statistical mechanics approach to cellular homeostasis and adaptability**

Abstract:

Tensional homeostasis is a crucial cellular process that maintains tissue integrity and function by enabling cells to adapt to mechanical cues from their environment. This regulation of intracellular tension supports essential physiological processes such as tissue development, wound healing, and organ maintenance. Understanding the physical mechanisms underlying cellular homeostasis and adaptability is vital for advancing cell biology, particularly in the field of mechanobiology. From a thermodynamic and statistical mechanics perspective, we explore how cells maintain stability and adapt to mechanical stress. Specifically, this study investigates the cellular system comprising nonmuscle actin and myosin as an adaptive component of cellular mechanics. While our approach focuses on fundamental factors due to the inherent complexity of cellular systems, it provides a theoretical framework for understanding the intricate homeostatic and adaptive behaviors of cells.

[This seminar will be held in relation to the ISSP Women's week 2024.](#)

Please contact the following email for registration.

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