



UNIVERSITÀ
DI TRENTO

Dipartimento di
Biologia Cellulare, Computazionale e Integrata - CIBIO

FROM VESICLES TO SYNTHETIC MINIMAL CELLS

5 JUNE 2025
AT 11:30 A.M.
ROOM A204 | POVO 1

Life is a self-sustaining system that continuously proliferates by synthesizing membrane molecules from external raw materials, thereby enabling vesicle growth and division. Such living systems exist in a state markedly distinct from conventional physical systems, and elucidating the fundamental differences between living and non-living matter is a critical step toward understanding the essence of living systems. In this seminar, we will introduce our synthetic minimal cell research and examine the conditions required for sustained proliferation and evolution from the perspective of non-equilibrium statistical mechanics and information thermodynamics. This approach aims to shed light on the physical origin of the fundamental distinction between life and non-life.



**MASAYUKI
IMAI**

SOFT MATTER AND BIOPHYSICS LAB.
TOHOKU UNIVERSITY, JAPAN



DEPARTMENT OF CELLULAR, COMPUTATIONAL
AND INTEGRATIVE BIOLOGY - CIBIO
VIA SOMMARIVE, 9
38123 - POVO (TN)
COMUNICAZIONE.CIBIO@UNITN.IT