

# Biological Physics and Statistical Mechanics: from molecules to cells and beyond

Contribution ID : 70

Type : **not specified**

## Maximum Entropy models of populations of cells

*Tuesday, 10 June 2025 14:45 (30)*

I will recap our effort to represent populations of cells using Maximum-Entropy models defined on the space of single-cell metabolic states. At odds with more conventional optimization-based theories, these models place the emphasis on (a) cell-to-cell variability, (b) its relationship with fitness, and (c) inter-cellular interactions. Advantages, limitations and challenges will hopefully emerge. I will also discuss the problem of the physical meaning of the 'metabolic temperature' of a population, along with some new directions, mainly concerning the large-scale metabolic structuring of populations.

### Role

**Primary author(s)** : Prof. DE MARTINO, Andrea (politecnico di torino)

**Presenter(s)** : Prof. DE MARTINO, Andrea (politecnico di torino)

**Session Classification** : Session 3