## Annual Meeting of the Swiss Physical Society 2024



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## [947] Spatial organisation of the cell's metabolic engine

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Cell metabolism is the engine that fuels all living processes. Recent experimental results highlight that it dynamically self-organises in space, including via phase separation. We use minimal theoretical models to study the energetics and spatial organisation of cell metabolism, with a focus on glycolysis. Specifically, we discuss efficiency and power of this metabolic engine and motivate why it may organise dynamically in space. We further investigate this by building a framework to study metabolic biochemical networks in spatially inhomogeneous systems. This should allow us to model the spatial profiles that arise in different conditions and understand how they affect properties such as efficiency and power.

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