

Eawag Seminar Invitation

New insights into laws for microbial growth

Speakers **Prof. Dr. Marco Cosentino Lagomarsino**, IFOM Foundation and University of Milan, Italy

When **April 29, 16.00 – 17.00 CEST**

Where **Online via Zoom, contact seminars@eawag.ch for access details.**

Abstract Proliferating cells couple nutrient and environment sensing to both growth and cell-cycle progression, but we know very little on how this task is carried out, particularly by a single cell. For example, a common assumption is that the biochemical circuits that sense nutrient levels adjust the rate of cell growth, which in turn affects the division machinery, determining cell division rate. Focusing on the model organism *E. coli*, this talk will address the hierarchy of events that single cells undergo to respond to a simple nutrient change. In particular, a combination of controlled environment-shift experiments in a single-cell microchemostat and mathematical modelling shows that the growth and the division machinery sense nutrient levels in parallel, but the division machinery adapts faster, likely by the use of a nutrient-mediated threshold-accumulation circuit.