

Colloquium Notice

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Gene expression dynamics at the single cell level and tissue patterning in embryo segmentation

In vertebrate embryos the sequential segmentation of the pre-somitic mesoderm (PSM) creates a tissue structure associated with the vertebral column. Before a given segment is created, the tissue is pre-patterned by the expression of different genes at different locations. Do cells create these patterns by expressing genes independently within cells, or do the patterns emerge by collective behaviour? In this talk I'll show that for zebrafish embryos, a significant part of the patterning process is encoded within single cells. More specifically, I'll show that a model of a cell containing a stochastic genetic timer and a stochastic genetic clock reproduce the observed gene expression dynamics observed in vivo and in vitro. Finally, this model is extended by introducing the entry rate of the cells to the PSM, and reproduces non-trivial features observed in the patterning of the embryo. This work extends our understanding on how cells pattern the PSM before creating a segment, and also introduces a new strategy for tissue patterning within embryos.

Note: Physics Conference Room, SB B326

Monday
February 27, 2023
Starts at 12:15 PM
Coffee at 12:00 PM

SB B326

This talk is accessible via [Zoom](#) or use
meeting ID 829 2687 2594 and **passcode 866995** to join