**PROJECT PROPOSITION - Lab1** (M1, second semester)

Supervisor(s): Marion Buffard Ovidiu Radulescu………………………………..

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Hosting lab:LPHI ………………………………..

Period of proposed project (put **x** instead of ロ) :

ロ Only 1st slot ロ Only 2nd slot

ロ One slot, but I have no preference on which x Both slots (with different groups)

1st slot: thursdays and fridays, from 3/2/2021 to 18/3/2021

2nd slot: thursdays and fridays (except for the last 2 weeks), from 31/3/2021 to 6/5/2021

PROJECT’S TITLE

Stochastic gene expression in space in time

Subject (5 lines max for the description)

Gene expression is stochastic in space and in time. A cell generates gene products intermittently, periods of activity being followed by one or several periods of inactivity of stochastic duration. The periods of activity and inactivity of various cells in a tissue are not synchronized. We use imaging of RNA tagged Drosophila embryos and analysis of the activity and inactivity RNA synthesis periods in order to reconstruct models of stochastic gene expression.

Technical tools to be used:

The deconvolution pipeline, a Python software developed in our team to analyse real time images of RNA tagged tissues.

Objectives:

Understanding the relation between promoter and cis regulatory sequences, and the quantitative characteristics of the stochastic gene expression

Understanding the spatial dependence of stochastic gene expression in an embryo

Explain the interplay between expression noise and precision of the patterning in development