

Practical and theoretical aspects of modeling gene networks

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Abstract: Models of gene networks typically focus on the average dynamics of a population or single cell behavior. However, in cases where a gene network is inside a cell that grows and divides, such approaches cannot capture the rich dynamical properties that a population has. In this talk I will present a novel framework to model gene networks that captures the dynamics of populations of cells. In the second part of the talk I will present a theoretical approach to solve the network inference problem. This problem consists in inferring the structure of a gene network from time series. Our results guarantee that given enough data, the structure of a gene network can be recovered with zero errors.