



Seminar

Systems and Control Group - CIDMA

28 de fevereiro de 2020, 14h30

Departamento de Matemática, Universidade de Aveiro
Sala Sousa Pinto

Influence of mutation rates on phenotypically-structured
populations in time-periodic environment

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Abstract

We study a partial differential equation that represents a structured population in a time-periodic environment. To give biologic insight, we consider the special case of a heterogeneous tumour being subject to on-and-off chemotherapy intake. We show that constant environments result in smaller populations, and that environments that have large variations will favour more plastic populations. In the context of cancer, this has several implications in protocol choices for chemotherapy. A constant chemotherapy intake will favour a single-phenotype cancerous population, while MTD (Maximal Treatment Dosage) protocols might favour larger, more heterogeneous populations, with larger mutation rates.

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