



Seminari Informal de Matemàtiques de Barcelona

Speaker: Kevin Martínez Añón.

University: Centre de Recerca Matemàtica (CRM), Universitat Autònoma de Barcelona (UAB).

Date: Wednesday, May 24th, 2023.

Schedule: 13:00, *virtual coffee break*; 13:20, talk.

Place: UAB (aula petita CRM) and Zoom.

Language: English.

Title: Searching for all gene networks capable of pattern formation

Abstract: Development is the process by which the complex anatomy of multicellular organisms is built in each generation. Not many other natural processes lead to so much complexity in such a short period of time. Morphological transformations during development are regulated by what we call gene regulatory networks, that is, the specific activatory and inhibitory interactions between gene products at a molecular level. In this talk, under the framework of reaction-diffusion models, we attempt a mathematical approach to these developmental transformations by asking ourselves a very simple question: “which gene regulatory networks are actually capable of pattern formation?” More specifically, we wonder whether the immense number of patterning gene networks that we can think of - especially when the number of genes involved in the network is very large - can all be sorted into some few fundamental classes sharing the same topological features and resulting in similar final patterns.

About us: *SIMBa* is a mathematics seminar organized by graduate students in the Barcelona area. It is aimed towards graduate and last course undergraduate students. Our goals are divulging the knowledge from different branches of mathematics for those interested and promote networking between the attendants.

This seminar is backed by the Faculty of Mathematics and Computer Science at Universitat de Barcelona, Faculty of Mathematics and Statistics at Universitat Politècnica de Catalunya, the Department of Mathematics from Univesitat Autònoma de Barcelona, CRM, IMUB and BGSMath.

For more information, visit at www.ub.edu/simba/en/.

If you have any doubt or comment do not hesitate to contact us by sending an email to *seminari.simba@gmail.com*.