SIMBa

BGSMath
BARCELONA GRADUATE SCHOOL OF MATHEMATICS

Seminari Informal de Matemàtiques de Barcelona

***Speaker*:** Andriana Karuk.
University: .

Date: Wednesday, March 2nd, 2022.
Schedule: 16:00, *virtual coffee break*; 16:20, talk.
Place: Zoom, UB (aula B1).
Language: English.

Title: Unlikely Intersections in Dynamics

Abstract: Arithmetic dynamics is an encounter of number theory and dynamical systems. In arithmetic dynamics, one focuses on studying properties of self-maps with a flavour of number theory. In particular, the study of unlikely intersections in arithmetic geometry leads to dynamical problems of an arithmetic nature. The guiding principle is that families of objects should not intersect unless there is a geometric reason forcing the converse. Our object of study is the set of parameters $c \in \mathbb{C}$ such that both a and b are preperiodic for $f_c(z) = z^d + c$. We will see that for any fixed $a, b \in \mathbb{Z}$ and any integer $d \geqslant 2$, the set of $c \in \mathbb{C}$ for which both a and b are preperiodic for $z^d + c$ is infinite if and only if $a^d = b^d$. The proof combines combined complex-analytic and arithmetic tools to prove this statement, which we will have a glimpse of.

About us: *SIMBa* is a youth 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 knoweledge 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.

Fore 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***.