



Seminari Informal de Matemàtiques de Barcelona

Speaker: Beatriz Barbero Lucas.
University: University College Dublin.

Date: Wednesday, June 19th, 2024.
Schedule: 13:00, *coffee break*; 13:20, talk.
Place: UB (FMI aula B1) and Zoom.
Language: English.

Title: Using Generalized Monomial-Cartesian Codes to obtain new Quantum Codes

Abstract: Quantum computers are a great tool to attack some intractable problems for classical computers, such as the prime factorization problem and the discrete logarithm problem. However, quantum computer implementations have higher error rates than classical computers, making reliability a challenge. That is where Quantum Error correction codes come into play. In the first part of this talk I will give an introduction to error correcting codes, in particular to evaluation codes, in order to later understand the good properties of the new quantum codes that we obtained from the Generalized Monomial-Cartesian codes that we have proposed. This talk is based on the paper <https://link.springer.com/article/10.1007/s11128-024-04297-x> with F. Hernando, H. Martín-Cruz and G. McGuire.

About us: *SIMBa* is a mathematics seminar organized by graduate students in the Barcelona area. It is aimed towards graduate and last-year undergraduate students. Our goals are disseminating knowledge from different branches of mathematics for those interested and promoting 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 at Universitat Autònoma de Barcelona, CRM, IMUB and BGSMath.

For more information, visit seminari-simba.github.io/en. You may contact us by sending an email to seminari.simba@gmail.com.