



Discrete Mathematics Seminar

Title: After the counterexample: What remains of the Etzion–Silberstein conjecture?

Speaker: Professor Alessandro Neri (University of Naples Federico II)

Date: Wed 9th September 2026 at 2:00PM

Location: N0.20 – Science North

Abstract: The Etzion–Silberstein conjecture has been a central existence problem for optimal Ferrers diagram rank-metric codes for more than fifteen years. Recent work on reducibility and irreducible Ferrers diagrams has significantly clarified the structure of the problem, reducing a seemingly vast collection of cases to a much smaller and more structured family. Very recently, a counterexample found by Prajapati (arXiv:2608.08478), with a wide use of AI, showed that the conjecture, in its original form, is false. Rather than closing the problem, however, this development opens a new phase: How much of the conjecture survives? Where and why can counterexamples occur? What is the actual boundary between existence and non-existence? In this talk I will survey the current state of the problem, describe recent progress obtained with Hugo Beeloo-Sauerbier Couvée and subsequent developments, and discuss what the counterexample tells us about the remaining picture.