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COLLOQUIUM

How independent are independent subsets?

Prof Eric Andriantiana (Rhodes University)

DATE: Monday, 19 January 2026 | 16h00–17h00 SAST

VENUES:

- **Stellenbosch University:** NITheCS Seminar Room, Merensky Building
- **North-West University**: Seminar Room K310, Physics Building G5
- **University of the Witwatersrand**: Room P215, 2nd Floor, Physics Building
- **Online**

--- A recording of the talk will be published on the NITheCS YouTube channel afterwards ---

ABSTRACT

Graphs (in Graph Theory) consist of dots, called vertices, with some pairs connected by lines, called edges. An independent subset is a set of vertices in which no two are joined by an edge, although they may still be connected by a path of length greater than one.

In this talk, we will discuss and compare several possible generalisations of the notion of independent subsets, by proposing ways to measure how independent a set of vertices is. We will focus in particular on the concept of k-nearly independent subsets, and present characterisations of extremal graphs with respect to the number of such subsets in various graph classes.

BIOGRAPHY

Prof Eric Andriantiana was born in Madagascar and completed his undergraduate studies at the École Normale Supérieure of the University of Fianarantsoa, where he obtained a degree in Mathematics and Mathematics Education.

In 2008, he attended the African Institute for Mathematical Sciences (AIMS), after which he completed both his MSc and PhD in Mathematics, specialising in Graph Theory, at Stellenbosch University.

He is currently an Associate Professor and Head of the Department of Mathematics at Rhodes University.

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