



Centro de Matemática
Universidade do Porto

Seminar on Semigroups, Automata and Languages

Regularity properties of tropical matrices

Victoria Gould
University of York

Abstract: The multiplicative semigroup $M_n(F)$ of $n \times n$ matrices over a field F is well understood. In particular, it is a regular semigroup, and its ideal of singular (non-invertible) matrices is idempotent generated. Various authors have considered the algebraic properties of $M_n(\mathbb{T})$, where \mathbb{T} is the tropical semiring, as part of the wider study of so-called tropical mathematics. Although there are some surprising correlations between $M_n(F)$ and $M_n(\mathbb{T})$ it is well known that $M_n(\mathbb{T})$ is not regular. In this talk I will discuss whether $M_n(\mathbb{T})$, and certain subsemigroups, possess other, weaker, properties. As for regularity, these are determined by idempotents. It transpires that some curious behaviour arises of the biordered set of idempotents. In particular we investigate the idempotent generated subsemigroup of the semigroup of upper triangular tropical matrices.

Date: Friday, 28 May 2021, 14:30
Place: Online Zoom meeting



Com o apoio do projeto UIDB/00144/2020