

Leslie Comrie Seminar Series 2023/24

Wednesday 6 March 2024, 15:00-16:00

Speaker: Dr Ebrahim Patel, University of Greenwich

Tropical Maths: Another New Way to Model the World

Abstract

Tropical mathematics is a novel tool, whose main advantage is to linearise scheduling systems that are conventionally nonlinear. To this effect, it has efficiently modelled transport timetables, manufacturing processes, as well as small scale systems, such as those in computer hardware and cellular organisms. In this talk, I will present an overview of my research and teaching experience with some of these applications, namely airport and railway scheduling. I will also present an extension of tropical mathematics that I have developed and coined as 'maxmin-omega'; I will argue that this model of dynamics on networks can prove impactful on a wider set of applications, such as disease and information spread in social networks, and generates fresh insights into network science areas such as threshold dynamics, network backbones, and the structure-dynamics interplay.

Bio

Ebrahim is a Lecturer in Mathematics and Data Science at the University of Greenwich. He first met tropical mathematics during his PhD at the University of Manchester. Most of his research has subsequently been conducted at the University of Oxford, focusing on discrete dynamical systems and network science, collaborating with engineers, computer scientists, and artists, and applying the work to industry. He is also a co-founder of The Bees, an award-winning mathematical writing group, aiming to promote the beauty of mathematics and its applications to non-experts. Previously, he was a founding faculty member of The London Interdisciplinary School.