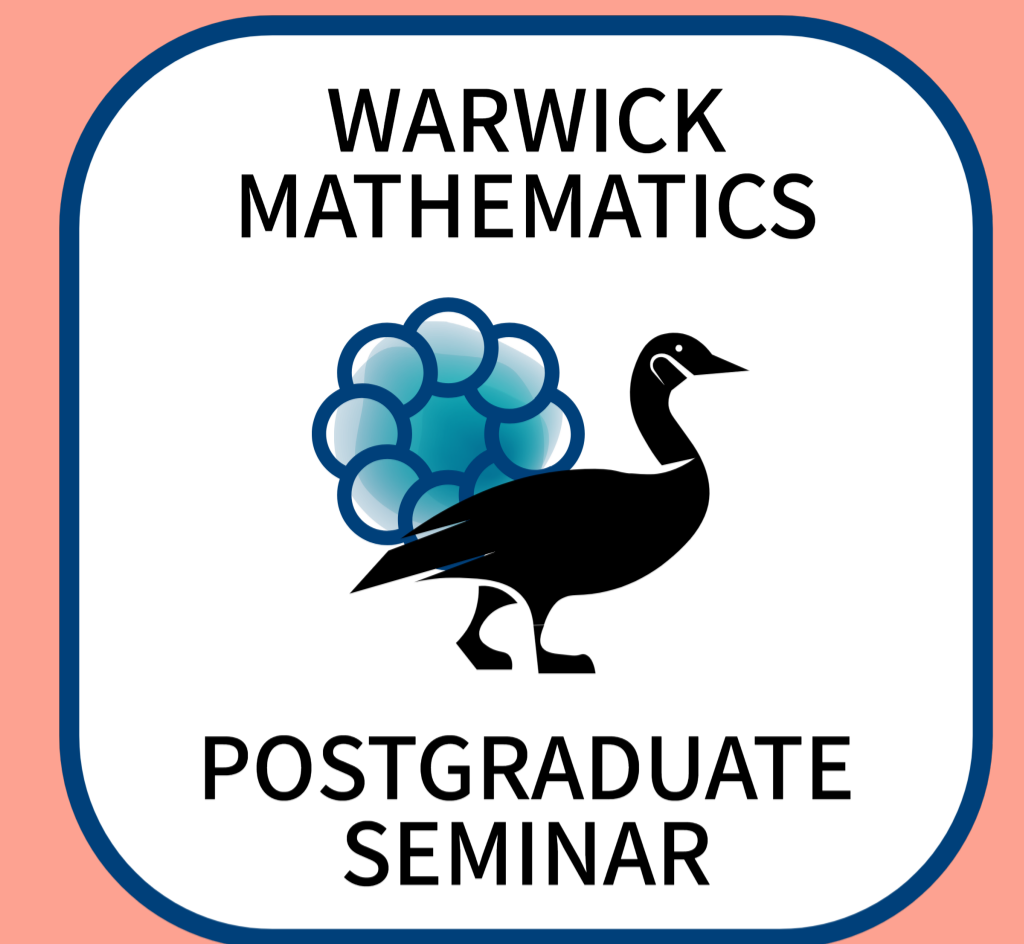


Speeding up Cylindrical Algebraic Decomposition

Tereso del Río Almanajo (Coventry University)

Week 5 - Term 3



Abstract

Cylindrical Algebraic Decomposition (CAD) is an algebraic algorithm that comes in handy, among other things, to disprove statements about polynomials (for example, whether $\exists x \exists y \exists z$ such that $x^3yz - yz^2 > 0$ and $x - z^5 + 3 = 0$) and to count the connected components of polynomial varieties. However, CAD has doubly exponential complexity on the number of variables, limiting its practical application.

In this talk, we will see how machine learning and a recent algorithm in validated numerics and machine learning can be used to radically increase the practical potential of CAD.

Time

12 pm, 24th
May 2023

Location

Room B3.02

Organisers

Alvaro Gonzalez Hernandez
Katerina Santicola