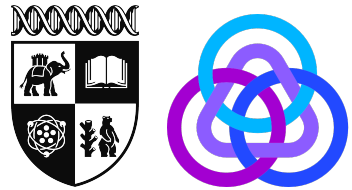
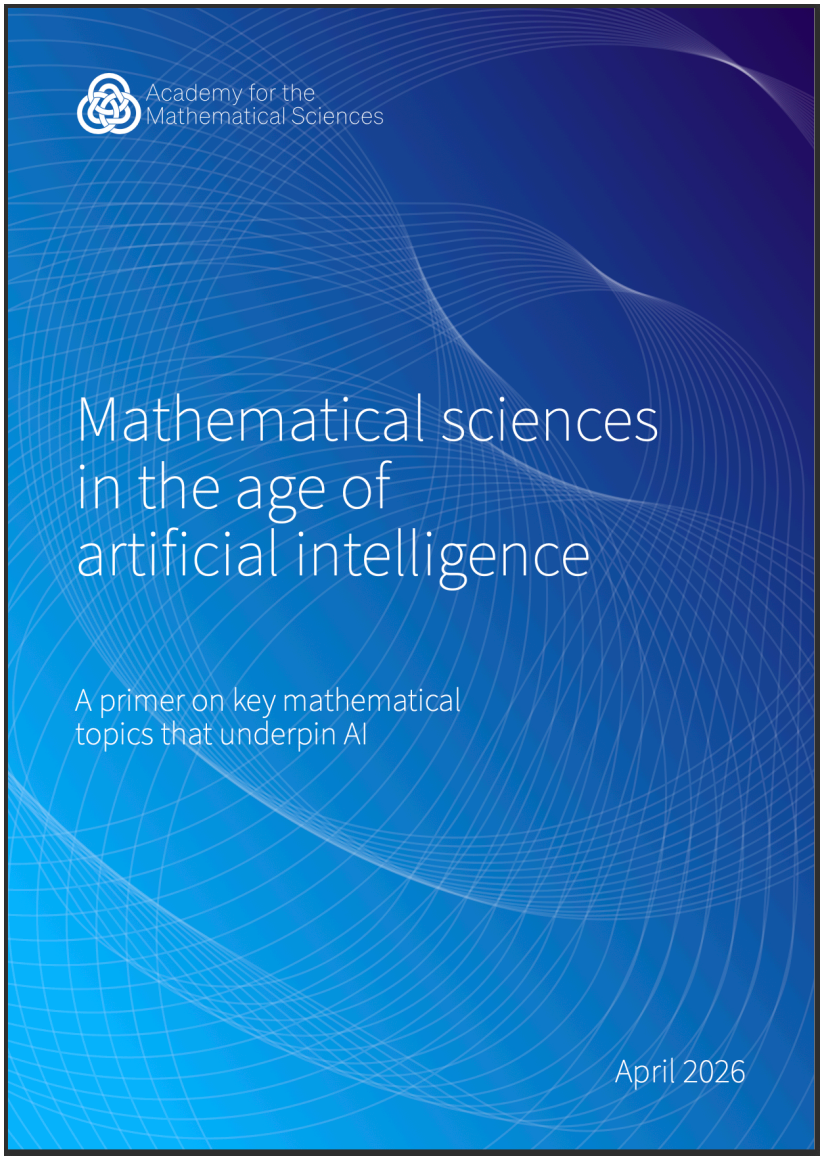


# How do we articulate the role of the mathematical sciences in AI?

Yi Yu
Department of Statistics, University of Warwick
On behalf of the Working Group of the Academy for the Mathematical Sciences

- Kick-off Event: Principled and Effective AI Adoption in Mathematics Higher Education and Research (27-28 April 2026)
- Hackathon
- ...




## Contents

- Mathematics explains AI.
- Mathematics sets the limit of AI.
- Trustworthy AI is fundamentally a mathematical challenge.
- AI is creating new opportunities for mathematical sciences research.
- Fundamental research matters

- Big picture
  - Is the mathematical sciences community currently articulating its role in AI strongly enough?
  - Are we describing ourselves as contributors to AI, or as foundational to it?
  - What do we most want university leaders, funders, and policymakers to understand about mathematics and AI?
- Strategy
  - How should departments adapt curricula so graduates can use AI critically, not just consume it?
  - What balance should we strike between traditional mathematical formation and new AI-facing content?
  - Do we need new hiring, new centres, or new interdepartmental structures?
- Identity
  - Does AI strengthen the case for unity across pure, applied, and statistical mathematics?
  - How do we stop the public story of AI becoming one in which mathematics disappears behind engineering?