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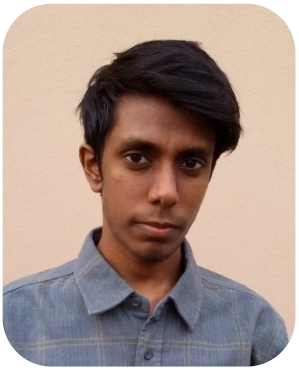
S E M I N A R



Nashlen Govindasamy
(Imperial College London, UK)

Lower Bounds against the Ideal Proof System in Finite Fields

ABSTRACT

This talk is based on joint work with Elbaz, Lu, and Tzameret (to appear in STOC'26). The talk will focus on the underlying ideas of this work, and of proof complexity more broadly, rather than on the technical details. Lower bounds against strong algebraic proof systems and specifically fragments of the Ideal Proof System (IPS), have been obtained in an ongoing line of work. All of these bounds, however, are proved only over large (or characteristic 0) fields, whereas finite fields form the more natural setting for propositional proof complexity. This talk discusses lower bounds against fragments of IPS over constant-sized finite fields, resolving an open problem left by a series of prior works beginning with Forbes, Shpilka, Tzameret, and Wigderson (Theor. of Comput.'21), persisting with Behera, Limaye, Ramanathan, and Srinivasan (ICALP'25), and most recently posed by Forbes (CCC'24). It further highlights the importance of the constant-sized finite field regime in IPS by showing that any hard instance in this regime for a sufficiently strong proof system translates into a hard instance against AC0[p]-Frege, whose lower bounds remain a longstanding open problem.

Nashlen Govindasamy is a PhD student at Imperial College London with research interests in discrete mathematics and theoretical computer science. He completed an MSc at the University of Oxford and a BSc (Hons) at the University of KwaZulu-Natal.

Date:
Thursday, 9 April 2026

Time:
12h15-13h15 SAST

Venues:
- NITheCS Seminar Room
  University of KwaZulu-Natal
  Westville Campus
  3rd Floor, H-Block,
  School of Chemistry and Physics
- Online

WHO SHOULD ATTEND?

The seminar will be accessible to advanced undergraduates, postgraduate students and researchers in mathematics and computer science. All are welcome.

ENQUIRIES:

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REGISTER: https://bit.ly/4tf94SR

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