

S E M I N A R



Dr Ranjitha Raviprakash
(University of KwaZulu-Natal)

Date:

Thursday, 21 August 2025

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 should be accessible to advanced undergraduates and will highlight results that should interest advanced researchers.

ENQUIRIES:

Email Neli Mncube: neli.mncube@nithecs.ac.za

McKinsey-Tarski Algebras

ABSTRACT

In this talk, we introduce McKinsey-Tarski algebras (MT-algebras) as a faithful generalization of topological spaces, building on the work of McKinsey and Tarski on interior algebras. We propose complete interior algebras as an alternative pointfree approach to topology and examine their connections to both topological spaces and frames. Associating to each MT-algebra the lattice of its open elements defines a functor to the category of frames, which we analyse in depth. Additionally, we explore the dual adjunction between MT-algebras and topological spaces, extending the classical relationship between topological spaces and frames. A central focus of this talk is the development of separation axioms in the language of MT-algebras, generalizing separation concepts from both topological spaces and frames. We also establish the Hofmann-Mislove theorem for sober MT-algebras and use it to derive MT-algebraic counterparts of well-known dualities in pointfree topology, including the Hofmann-Lawson, Isbell, and Stone dualities. Thus, we provide a new perspective on these classical results.

Dr Ranjitha Raviprakash is a postdoctoral fellow in Mathematics at the University of KwaZulu-Natal.

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