

## NITheCS COLLOQUIUM

# On Sublocales: Metric Sublocales and Property S

Dr Cerene Rathilal (University of KwaZulu-Natal)

Monday, 15 May 2023 | 17h00 – 18h00 SAST

Attend in person\* or online

\* Room 1005, Mathematics and Industrial Psychology Building, Stellenbosch University

--- Cheese and wine will be served at the venue ---

### ABSTRACT

Pointfree topology (often referred to in literature as frames or locales) is an area in which the primitive notion of study is the lattice of open sets of a topological space rather than the points of the space. Sublocales, which are generalised subspaces, were first introduced by Isbell, Dowker and Papert. In this talk, we discuss the approach of using a nucleus to study sublocales and hence metric sublocales.

A metric locale is the pointfree counterpart of metric space, which is a well-known structure that underpins the whole of modern mathematical analysis. Naturally, one may ask how the metric structure on a locale can be inherited by sublocales of the locale. We will use the nucleus as a tool to define the induced metric structure on a given sublocale. We investigate connectedness properties on sublocales and give an equivalent criterion for Property S on sublocales.

### BIOGRAPHY

Dr Cerene Rathilal is a lecturer in the School of Mathematics, Statistics and Computer Science at the University of KwaZulu-Natal. Her primary research focus is in General and Pointfree Topology.

She is an editor of the notices at SAMS and the JFAC for Algebra and Topology at the CoE-MaSS.

In her spare time, she is very active with various community engagement activities, including hosting an annual International Day of Mathematics programme, Career Fest, Teacher Training workshops, delivering Mathematics lessons via the Mathematical Structures and Modelling Research Programme at NITheCS, and managing STEM MentHER.



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