



**INDIAN STATISTICAL INSTITUTE**

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# Theoretical Statistics and Mathematics Unit

## Monday Colloquium

Date: March 27, 2023

Time: 04:15 P.M.

Venue: L-infinity, Stat-Math Unit (5<sup>th</sup> Floor, A.N. Kolmogorov Bhavan)

**David Blanc**

University of Haifa

**TITLE:**

## Simplicial categories and their $k$ -invariants

**ABSTRACT:**

*The Postnikov tower for a topological space allows it to be decomposed into simpler parts with only a finite number of non-trivial homotopy groups, and certain cohomology classes called its  $k$ -invariants determine how each new homotopy group is added on. For an individual space  $X$ , these are constructed formally, and are hard to interpret in terms of actual homotopy-meaningful information about  $X$ .*

*On the other hand, simplicial categories - i.e., categories enriched in topological spaces - are perhaps the most intuitive model for infinity-categories (if not always technically convenient). They also have Postnikov towers and  $k$ -invariants (defined for each mapping space), and here the  $k$ -invariants, though hard to identify, do convey interesting information. In the talk we shall briefly sketch the main constructions and explain how the  $k$ -invariants for a simplicial category may be defined and used.*

*Joint work with Nicholas Meadows*

**ALL ARE CORDIALLY INVITED**