



SCMS Seminar

INTRODUCTION TO TOPOLOGICAL FULL GROUPS

SCMS & SIMIS Joint Lecture Series

Speaker: Hiroki Matui

Chiba University

Time&Venue:

SCMS Room 102, Sep. 9 (Tuesday), 15:00-17:00

SIMIS Room 710, Sep. 10 (Wednesday), 15:00-17:00

SCMS Room 102, Sep. 12 (Friday), 15:00-17:00

Zoom Meeting ID: 646 617 8889

Passcode: 123456wu

Abstract:

In this mini-course, we will introduce various properties and examples of topological full groups, which are discrete groups naturally associated with étale groupoids whose unit spaces are Cantor sets. Over the past two decades, these groups have been extensively studied and are now known to exhibit a rich array of features, such as simplicity, amenability, and finite generation, making them central objects at the intersection of group theory, topology, and operator algebras.

Starting from the definition of topological full groups, we will discuss basic examples arising from minimal $\mathbb{Z}$ -actions and AF groupoids. We will also explain the connections to groupoid homology, and the reconstruction theorem which claims the group structure of the topological full group remembers the groupoid itself.

A significant part of the theory revolves around the dichotomy of ample groupoids into two classes: almost finite and purely infinite groupoids. With this distinction in mind, we will discuss structural results such as simplicity of the commutator subgroup, amenability, and finite generation of topological full groups. Depending on time constraints, we may select certain topics to discuss in more detail.