



# INDIAN STATISTICAL INSTITUTE

Theoretical Statistics and Mathematics Unit, Kolkata

## Thesis Defense Seminar

Date: February 24, 2023, Friday  
Time: 11:30 AM

**Mode: Online**

**Video Call Link: <https://meet.google.com/vfw-shri-hjg>**

### **TITLE:**

Weighted inequalities for maximal operators and the Hardy space  $H^1$  on LCA groups

### **SPEAKER:**

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### **ABSTRACT:**

*Hytonen and his collaborators have shown that Buckley's sharp one weight estimate for the Hardy-Littlewood maximal operator in  $\mathbb{R}^n$  can be further improved in terms of two different  $A_p$  constants in the abstract setting of spaces of homogeneous type. In the first part of this talk, we will generalize this result for a family of general sets in a topological space. We will also talk about the weighted inequalities for the maximal operator of Fourier series in the context of the ring of integers of a local field.*

*Coifman and Latter showed that the functions in the Hardy space  $H^1(\mathbb{R}^n)$  can be decomposed into simple building blocks, called atoms. This remarkable discovery freed the theory of  $H^1(\mathbb{R}^n)$  from the rigidity of differentiable structure of  $\mathbb{R}^n$  and makes possible its extension in a variety of contexts. Using the notion of atoms, in the second part of this talk, we will discuss the theory of Hardy spaces in the setting of a locally compact abelian group having a covering family.*

**ALL ARE CORDIALLY INVITED**