

SALZBURG MATHEMATICS COLLOQUIUM

Winter 2016/2017

Juha Kinnunen (Aalto)

„Regularity of Hardy-Littlewood type maximal operators on metric spaces“

November 10, 2016

Abstract:

This talk focuses on smoothness properties of maximal functions on metric measure spaces with a doubling measure and a Poincaré inequality, which are rather standard assumptions in analysis on metric measure spaces. We consider mapping properties of so-called discrete maximal operators in Sobolev, Hölder, BMO, Morrey and Campanato spaces and show that the discrete maximal operators are bounded in these spaces. It is somewhat unexpected that the standard Hardy-Littlewood type maximal operators do not have the corresponding boundedness results in the context of metric measure spaces. Instead, we consider a discrete maximal operator, which is defined by approximations of the function in terms of partitions of unity and Whitney type coverings. The discrete maximal function is comparable to the standard maximal function. Hence for all practical purposes, it does not matter which one we choose. We also give applications to the pointwise behavior of the functions.

Thursday, **15:00-15:45**

Hörsaal 414, 1. Stock