

**INTRODUCTION TO MEASURE THEORY**  
**– KAKEYA SETS –**

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ABSTRACT. The concept of measure generalizes notions such as “length”, “area” or “volume” so that one can integrate over domains more general than intervals on the real line.

In this talk, I will give a brief introduction to measure theory by giving the basic definitions and sketching the proofs of some important theorems such as the Lebesgue’s dominated convergence theorem and the Riesz representation theorem. Towards the end of the talk, I will discuss the Kakeya set problem and state a method for constructing the Kakeya set of arbitrarily small measure.