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**Title:** Uniform integration

**Abstract:** This talk will focus on the question "how do we think about measure and integration"? I will start by introducing p-adic numbers (here p is an arbitrary prime), which form a locally compact field which has a natural measure. These fields play an important role in number theory exactly because they allow to introduce analysis techniques into the study of matters of divisibility by the chosen prime p. Then we will examine the measures on these p-adic fields, and talk about a way to do integration over the p-adics in a uniform in p way. This is the theory of Motivic Integration due to Kontsevich, Denef, Loeser, and Cluckers. I will also talk about recent developments in uniform in p analysis due to R. Cluckers and I. Halupczok, and hopefully some surprising parallel results for real constructible functions due to R. Cluckers and D. Miller, and their applications to number theory.