

## ***MODEL THEORY SEMINAR***

**Guest Speaker: Zoe Chatzidakis**

**Ecole Normale Supérieure -CNRS, Paris,  
France**

**Date:** Tuesday, February 2, 2021

**Time:** 10:45 AM

**Location:** Zoom

**Zoom URL:** [notredame.zoom.us/j/763507156](https://notredame.zoom.us/j/763507156)

***Lecture Title:***

**Measures on perfect PAC fields**

***Abstract***

This is work in progress, joint with Nick Ramsey (UCLA). A conjecture, now disproved by Chernikov, Hrushovski, Kruckman, Krupinski, Pillay and Ramsey, asked whether any group with a simple theory is definably amenable. It is well known that the counting measure on finite fields gives rise to a non-standard counting measure on pseudo-finite fields (the infinite models of the theory of finite fields). It was unknown whether other PAC fields possessed a reasonable measure, and in this talk, we will show that some of them do, although the measure we define does not have all the nice properties of a counting measure when the field is not pseudo-finite. This result can be used to show that if  $G$  is a group definable in an  $e$ -free perfect PAC field, then  $G$  is definably amenable. I will also discuss possible extensions to wider classes of perfect PAC fields.