

## Number Theory Seminar

### *A $p$ -adic strengthening of the Manin-Mumford conjecture*

Vlad Serban (Northwestern)

**Abstract:** Let  $G$  be an abelian variety or a product of multiplicative groups  $\mathbb{G}_m^n$  and let  $C$  be an embedded curve. The Manin-Mumford conjecture (a theorem by work of Lang, Raynaud et al.) states that only finitely many torsion points of  $G$  can lie on  $C$  unless  $C$  is in fact a subgroup of  $G$ . I will show how these purely algebraic statements extend to suitable analytic functions on open  $p$ -adic unit poly-disks. These disks occur naturally as weight spaces parametrizing families of  $p$ -adic automorphic forms for  $GL(2)$  over a number field  $F$ . When  $F = \mathbb{Q}$ , the "Hida families" in question play a crucial role in the study of modular forms. When  $F$  is imaginary quadratic, I will explain how our results imply that Bianchi modular forms are sparse in these  $p$ -adic families.

Friday, May 6 at 11:00 AM in SEO 427