BOSTON UNIVERSITY NUMBER THEORY SEMINAR

Ω

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Monday, January 23 at 4:15 pm
111 Cummington Street, MCS B21
Tea and cookies in MCS 144 at 3:45 pm

Abstract: Ω is Drinfeld's upper half-plane, defined as the p-adic projective line minus its $\mathbb{Q}_p$-rational points. In this mostly expository talk, we will discuss some ways that the geometry of Ω shows up in number theory. For instance, just as the quotient of the complex upper-half plane by an arithmetic subgroup of $\mathrm{GL}_2(\mathbb{R})$ is a modular curve, the quotient of Ω by an arithmetic subgroup of $\mathrm{GL}_2(\mathbb{Q}_p)$ is a Shimura curve. Unlike its complex cousin, however, Ω isn't simply connected: it admits a tower of $\mathrm{GL}_2(\mathbb{Q}_p)$-equivariant étale covers. These covers, constructed by Drinfeld, are strongly implicated in the local Langlands correspondence. We will touch upon work by Čerednik-Drinfeld, Drinfeld, Faltings, Fargues, Fargues-Fontaine, and Scholze. This talk is the first in a series of two.