CUSPS OF ARITHMETIC GROUPS

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Let $\Gamma < G$ be an arithmetic lattice in a semisimple Lie group, defined via the number field $k$. How does the arithmetic of $k$ affect the geometry of the corresponding locally symmetric space? I will explain how, when $G$ is a unitary group and $\Gamma$ is maximal nonuniform lattice, the geometry at infinity is dictated by the structure of the ideal class group of $k$. I will focus on the case $G = SU(2, 1)$, where nonuniform arithmetic lattices are commensurable with the so-called Picard modular groups, and prove that, for any $N$, there are only finitely many commensurability classes which contain an element with $N$ cusps, i.e. $N$ topological ends for the corresponding locally symmetric space. Given time, I will discuss the higher-rank analogue.