A GLIMPSE OF BOREL–HARISH CHANDRA THEOREM

ABSTRACT

In this talk, we will discuss a result of Borel–Harish Chandra on the non-compactness of the quotient space $G(\mathbb{Q})\backslash G(\mathbb{A})$, where G is a connected reductive algebraic group defined over $\mathbb{Q}$ and $\mathbb{A}$ is the ring of adeles of $\mathbb{Q}$. In this talk, we will mainly focus on real Lie groups setting, i.e., algebraic groups defined over $\mathbb{R}$, rather than going into the adelic set up. We will prove a version of Borel–Harish Chandra theorem for the special orthogonal group $G = \mathrm{SO}_n$, using Mahler's compactness criterion on $\mathrm{SL}_n(\mathbb{Z})\backslash\mathrm{SL}_n(\mathbb{R})$.