

Abstract: Let F be a p-adic field, $G = Sl_2(F)$, $B = TU$ the Borel subgroup $C = \{x \in M_2(F) - 0 | \det(x) = 0\}$. We have maps $||| : G, C \rightarrow \mathbb{R}$ which associate to a matrix the maximum of norms of matrix coefficients. For any $n \in \mathbb{R}$ we denote by G_n, C_n subsets of matrices with norm bigger then n .

Let $K \subset G$ be an open compact subgroup. Then for $n > n(K)$ there exists a bijection between $K \times K$ -orbits in G_n and $K \times K$ -orbits in C_n which maps a $K \times K$ -orbit in G to the “nearby” $K \times K$ -orbit in C . Such a bijection defines an isomorphism ϕ between the space of $K \times K$ -invariant functions on C_n and the space of $K \times K$ -invariant functions on G_n .

Bernstein proved the existence of the unique $G \times G$ -equivariant linear map $B : \mathbb{C}_c^\infty(C) \rightarrow \mathbb{C}_c^\infty(G)$ whose restriction on $K \times K$ -invariant functions on C_n is equal to ϕ .

I’ll explain how to write an “explicit” formula for B and how to derive from this formula the expression for the Plancherel measure on the principle series of representations of G . The same construction works for an arbitrary reductive F -group G .