Eine Woche, ein Beispiel
4.24 irreducible representation of the Mirabolic group

Process
1. Notations
2. Constructions
3. Classification
4. Applications
   - Computation of $V(N), V_N, V(\vartheta), V_\vartheta$.
   - Dual, $Sym^m, \wedge^m, \ldots$
   - Decompose $Res_P^B Rep_B^G Ind_B^G \chi$ (not today, need knowledge of C & B)
   - Trace formula
5. Irr rep of B?

1. Notations.   F: non-archi local field.

$A = M_{2\times 2}(F)$ $G = GL_2(F)$

$B = \begin{pmatrix} * & * \\ 0 & * \end{pmatrix}$ $T = \begin{pmatrix} * & 0 \\ 0 & * \end{pmatrix}$ $N = \begin{pmatrix} 1 & * \\ 0 & 1 \end{pmatrix}$ $Z = \begin{pmatrix} a & 0 \\ 0 & a \end{pmatrix} = Z(G)$ $S = \begin{pmatrix} * & 0 \\ 0 & 1 \end{pmatrix}$

$\omega = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$ $T^0 = \begin{pmatrix} 0^\times & 0 \\ 0 & 0^\times \end{pmatrix}$ $N_j = \begin{pmatrix} 1 & \mathfrak{p}^j \\ 0 & 1 \end{pmatrix}$ $N_j' = \begin{pmatrix} 1 & 0 \\ \mathfrak{p}^j & 1 \end{pmatrix}$

Temporarily, $P := \left\{ \begin{pmatrix} a & b \\ 0 & 1 \end{pmatrix} \in GL_2(F) \right\} = F \rtimes F^\times := N \rtimes S$

↑ parabolic subgp

$0 \longrightarrow (F, +) \longrightarrow P \longrightarrow F^\times \longrightarrow 0$

            N   S