Ob erseminar
zur
Algebra und Algebraischen Kombinatorik

Dr. Qiong Guo
(Leibniz Universität Hannover)

"$U_n(q)$ acting on 2-flags and super characters"

Let $q$ be a a power of $p$ and $F$ be a field such that the characteristic of $F$ is non equal to $p$. For each $\lambda = (\lambda_1, \ldots, \lambda_k)$ being a partition of $n$, the permutation module for the finite general linear group $G = GL_n(q)$ is defined, namely $M_F(\lambda)$, which has a basis consisting of so called $k$-flags. Let $U = U_n(q) \leq G$ be the subgroup of (lower) unitriangular matrices in $G$. Using Mackey decomposition, we split the restriction $\text{Res}^G_U(M_F(\lambda))$ into $U$-submodules, called batches, which are labelled by row standard $\lambda$-tableaux $s$. We constructed a monomial basis of the action of $U^w \cap U$ on the $s$-batch, where $w$ is the unique element of the symmetric group $S_n$ with $t^w = s$. It turned out that the resulting $U^w \cap U$-orbit modules arising from the monomial basis are irreducible and the action of $U^w \cap U$ on these modules extends to an action of $U$ yielding irreducible $U$-modules. We obtain a complete classification of the irreducible $U$-characters arising in this way, which is indeed an obvious consequence of our main result in which we determine the Yan's supercharacters of which our $U$-characters are irreducible constituents.

Montag, 09.12.2013
ab 14:15 Uhr, Raum a410
Hauptgebäude der Leibniz Universität Hannover
Alle Interessierten sind herzlich eingeladen.
gez. Prof. Dr. C. Bessenrodt
Institut für Algebra, Zahlentheorie und Diskrete Mathematik