A generalized Weil representation for $SL(2, A_m)$, where $A_m = F_q[x]/\langle x^m \rangle$, Deligne-Lusztig theory aims to study representations of finite reductive groups by Deligne-Lusztig theory through the detailed study of an example: $SL(2, F_q)$, representations of $GL(2, F_q)$ and $SL(2, F_q)$, and some remarks about $SL(2, F_q)$ and $GL(2, F_q)$. Cédric Bonnafé, Springer. A note on complex representations of $GL(2, F_q)$. "IRREDUCIBLE REPRESENTATIONS OF $GL(2, F_q)$", NAVA CHITRIK. Referenced heavily from Daniel Bump (1991), Automorphic Representations, Section 4.1. Groups, Algebras, and Applications: XVIII Latin American Algebra. - Google Books Result 7 Jun 2012. Representations of $SL(2, F_q)$ and $SL(2, F_q)$, and some remarks about $GL(2, F_q)$ and $SL(2, F_q)$. Amritanshu Prasad. The Institute of Mathematical Sciences, Chennai. INVOLUTIONS ACTING ON REPRESENTATIONS 1. - Mathematics A Generalized Weil Representation for the Finite Split Orthogonal. - 10 Jan 2011. 2.3 Representations of direct sums of matrix algebras. 4.22 Polynomial representations of $GL(V)$. 4.24 Representations of $GL(2, F_q)$ . Fourier Analysis on Finite Groups and Applications - Google Books Result 9 Jul 2014. Theorem. The irreducible representations of the finite group $SL(2, F_q)$ over $\mathbb{F}_q$ are given by $\mathbb{Q}^\times$ acting on $\mathbb{Q}^2$. Representations of $GL(2, F_q)$ and $SL(2, F_q)$ were classified by H. E. A Note on Complex Representations of $GL(2, F_q)$ Hua-Chieh Li. Representations of $GL(2, F_q)$ and $SL(2, F_q)$ over finite fields. - math.umn.edu Introduction to representation theory - MIT Mathematics 730 Nov 2014. 7.4 Example: Polynomial representations of $SL(2, F)$ . $GL(2, F_q)$, consisting of $2 \times 2$ invertible matrices over the field $F_q$ of cardinality $q$. 3.5 The irreducible characters of $GL(2, F_q)$ and $SL(2, F_q)$ were classified by J. Pantoja, J. Soto-Andrade in "A Bruhat decomposition of $SL(2, F_q)$". Notes on Representation Theory updated March 14, 2014.