

**Meeting:** 1003, Atlanta, Georgia, SS 34A, AMS Special Session on Algorithmic Algebraic and Analytic Geometry, I

1003-14-1463      **David Joyner\*** ([wj@usna.edu](mailto:wj@usna.edu)), Math Dept, US Naval Academy, Annapolis, MD 21402, and  
**Amy Ksir.** *Modular representations on some Riemann-Roch spaces of modular curves  $X(N)$ .*

We consider the  $\mathrm{PSL}(2,N)$ -module structure of the Riemann-Roch space  $L(D)$ , where  $D$  is an invariant non-special divisor on the modular curve  $X(N)$ , with  $n > 5$  prime. The first section reviews known results and gives, as an example, the cases  $N=7,11$ . In the next section, ground fields of characteristic  $p > 0$  are considered. GAP and MAGMA were used extensively. Applications to AG codes associated to this curve are also considered. This paper ends with some tables, created using GAP, which yield computations for larger values of  $N$ . (Received October 05, 2004)