Meeting: 1002, Pittsburgh, Pennsylvania, SS 14A, Special Session on Modularity of Galois Representations and Serre's Conjecture

1002-14-245 **David Joyner*** (wdj@usna.edu), Math Dept, USNA, Annapolis MD 21402, and **Amy Ksir**, Math Dept, USNA, Annapolis MD 21402. *Modular representations on some Riemann-Roch spaces of some modular curves.* Preliminary report.

We consider the example of the modular curve X(N) with N prime and consider the G-modular structure of the Riemann-Roch space of certain divisors on X(N), where G=PS(2,N). The first section reviews known results and gives, for example, specific information in the cases N=7, 11. In the next section, ground fields of characteristic p¿0 are considered. GAP and MAGMA were used to do many of the examples, which focus on the cases N=7, 11. Applications to AG codes associated to this curve are also considered. (Received September 16, 2004)