1053-14-208 **Bryden R. Cais*** (bryden.cais@gmail.com), 805 Sherbrooke St. West, Montreal, Quebec H2K4A1, Canada. *Modular curves and modular representations of* $\mathrm{SL}_2$.

Abstract: Fix a prime $p$ and let $X(p)$ be the modular curve over the integers classifying elliptic curves with full-level $p$ structure. The group $G := \mathrm{SL}_2(\mathbf{F}_p)$ acts on $X(p)$ and hence on its (sheaf) cohomology. In this talk, we we will investigate the structure of the $\mathbf{Z}[G]$-module $M$ given by the global sections of the canonical sheaf. In particular, we will describe the reduction modulo $p$ of $M$ as a mod $p$ (modular) representations of $G$. This description relies heavily on the geometry of $X(p)$ in characteristic $p$ and uses Rosenlicht's description of the dualizing sheaf in terms of regular differential forms. (Received September 04, 2009)