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Becky E Hall* (hallb@wcsu.edu), 181 White Street, Danbury, CT 06810. *An Improved Method for Computing Group Homology of the Congruence Subgroup $\Gamma_0(2)$ of $SL_3(\mathbb{Z})$.*

A well-known theorem due to Manin gives a relationship between modular symbols for a congruence subgroup $\Gamma_0(N)$ of $SL_2(\mathbb{Z})$ and the homology of $X_0(N)$. A corresponding theorem for congruence subgroups of $SL_3(\mathbb{Z})$ was made by Avner Ash. I will briefly discuss an improved method for computing the group homology of the congruence subgroup $\Gamma_0(2)$ of $SL_3(\mathbb{Z})$. For W a $\Gamma_0(2)$ -module, I identify the group homology of $\Gamma_0(2)$ with a subspace of W^7 . This method uses a generalized notion of Gröbner bases in order to determine a minimal generating set for the ideal of conditions describing the desired subspace of W^7 . This procedure can be extended to $\Gamma_0(N)$ for $N > 2$. (Received August 16, 2010)