

1125-VN-1412

R. Scott Williams* (rwilliams77@uco.edu), University of Central Oklahoma, 100 North University Drive, Box 129, Edmond, OK 73034. *Level compatibility in the passage from modular symbols to cup products.*

In some sense, there is a correspondence that relates the geometry of the modular curve $X_1(M)$ and the arithmetic of the cyclotomic field $\mathbb{Q}(\zeta_M)$. More specifically, for a positive integer M and an odd prime p , R. Sharifi defined a map ϖ_M from the first homology group of the modular curve $X_1(M)$ with \mathbb{Z}_p coefficients to a second Galois cohomology group over $\mathbb{Q}(\mu_M)$ with restricted ramification and $\mathbb{Z}_p(2)$ -coefficients which provides one direction of this correspondence. T. Fukaya and K. Kato showed that if $p|M$ and $p \geq 5$ then ϖ_{Mp} and ϖ_M are compatible via the map of homology induced by the quotient $X_1(Mp) \rightarrow X_1(M)$ and corestriction from $\mathbb{Q}(\mu_{Mp})$ to $\mathbb{Q}(\mu_M)$. In this talk, we will show that for a prime $\ell \nmid M$, $\ell \neq p \geq 5$, the maps $\varpi_{M\ell}$ and ϖ_M are once again compatible, albeit now via a particular combination of the standard degeneracy maps along with corestriction. (Received September 16, 2016)