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Mahesh Agarwal* (mkagarwa@umd.umich.edu), Dept. of Mathematics and Statistics, 4901
Evergreen Rd, Dearborn, MI 42128. *Bloch-Kato conjecture for convolution L-functions.*

We give evidence for the Bloch-Kato conjecture for the convolution L -function of two elliptic modular forms. Let f be a newform of weight 2 and g be a newform of weight $k + 2$, $k \in \{2, 4, 6, 8, 12\}$, of level $\Gamma_0(q)$ for an odd prime q such that they are ordinary at p and residually absolutely irreducible Galois representations mod p for p an odd prime different from q . Under some additional conditions on p we show that if

$$p^n \mid L^{\text{alg}}(2 + k/2, f \times g) \implies p^n \mid \#H_f^1(G_{\mathbf{Q}}, \rho_f \times \rho_g(-k/2 - 1))$$

This is carried out by studying congruences between Yoshida lift of f, g and stable forms on $GS\mathfrak{p}(4)$. This is a report on joint work with Krzysztof Klosin. (Received March 29, 2010)