

NON-CRISTALLINE GENERALIZED KATO CLASSES AND THE VALUES OF THE TRIPLE-PRODUCT  
P-ADIC L-FUNCTION AT CLASSICAL POINTS

Francesca Gatti.

Let  $\mathbf{f}, \mathbf{g}, \mathbf{h}$  be three Hida families. The triple product  $p$ -adic  $L$ -function  $\mathcal{L}_p^g(\mathbf{f}, \mathbf{g}, \mathbf{h})$  interpolates the central  $L$ -values  $L(f_k \otimes g_\ell \otimes h_m, (k+\ell+m-2)/2)$  for classical weights  $(k, \ell, m)$  such that  $\ell \geq k+m$ . The point  $(2, 1, 1)$  lies outside the region of classical interpolation and  $L(f_2 \otimes g_1 \otimes h_1, s) = L(E \otimes \rho, s)$ , where  $E$  is an elliptic curve over  $\mathbb{Q}$  and  $\rho$  an Artin representation. Assume that it does not vanish at  $s = 1$ . In this setting, we describe the value  $\mathcal{L}_p^g(\mathbf{f}, \mathbf{g}, \mathbf{h})(2, 1, 1)$  in terms of a non-cristalline cohomology class which lies in the  $p$ -relaxed Selmer group attached to  $(E, \rho)$ . It is a joint work with X. Guitart, M. Masdeu, V. Rotger.