1127-11-323 **Preston Wake*** (`wake@math.ucla.edu`), UCLA Mathematics Department, Box 951555, Los Angeles, CA 90095, and **Carl Wang Erickson**. *Pseudorepresentations, Massey products, and the Eisenstein ideal.* Preliminary report.

In his landmark 1976 paper "Modular curves and the Eisenstein ideal", Mazur studied congruences modulo p between cusp forms and an Eisenstein series of weight 2 and prime level N. He proved a great deal about these congruences, but also posed a number of questions: how big is the space of cusp forms that are congruent to the Eisenstein series? How big is the extension generated by their coefficients? In joint work with Carl Wang Erickson, we give an answer to these questions using the deformation theory of Galois pseudorepresentations. The answer is intimately related to the algebraic number theoretic interactions between the primes N and p, and is given in terms of cup products (and Massey products) in Galois cohomology. (Received February 06, 2017)