

Meeting: 1003, Atlanta, Georgia, SS 32A, AMS Special Session on Arithmetic Algebraic Geometry, I

1003-11-547 **Robert Pollack** (rpollack@math.bu.edu), Department of Mathematics, Boston University, 111
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Kida's formula and congruences.

Kida's formula is a formula in classical Iwasawa theory describing the change in the p -adic Iwasawa μ and λ invariants in a p -extension of number fields. This formula was generalized to Selmer groups of ordinary elliptic curves by Hachimori and Matsuno via a group cohomological argument. In this talk we show that a very general version of Kida's formula for Galois representations can be deduced from formulas for the change in Iwasawa invariants under congruences. As an application we prove the main conjecture of Iwasawa theory for many modular forms over certain cyclotomic fields. (Received September 21, 2004)