YMC 2006

Young Mathematicians Conference 2006

August 4 th-6 th at The Ohio State University.

Finding a Galois Representation Corresponding to a Hecke Eigenclass

Meghan M De Witt

Brigham Young University [Mentor: Darrin Doud]

Abstract of Report Talk: In a 1992 paper, Avner Ash and Mark McConnell presented computational evidence of a generalized conjecture connecting modular forms to Galois representations. They gave several interesting examples and hypothesized that more evidence should be attainable although they were unable to produce this evidence in many cases. Using the technique of a computer Hunter search to limit the search range of polynomials, we were able to find three examples of Galois representations connected to polynomials. We then used class field theory to present evidence connecting these polynomials to the given Hecke eigenclasses. We used the techniques of elliptic curves and class field theory to find the polynomials defining the Galois representations. [DM14174448]

[Joint work with Dr Darrin Doud]

Contact: dewitt@byu.edu

Received: July 19, 2006