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Chad Awtrey, Kristen Mazur, Sara Rodgers* (srodgers6@elon.edu), **Nicole Soltz** and **Jesi Weed**. *Galois Groups of Degree 15 p -adic Polynomials*.

Polynomials whose coefficients are p -adic numbers play a central role in abstract algebra and number theory. A classical result states that given a prime number p and a positive integer n , there exist only finitely many “distinct” degree n polynomials with p -adic coefficients. Researchers have therefore focused on methods for counting the number of such polynomials as well as computing useful characteristics of each polynomial. One of the most important such characteristics is the polynomial’s Galois group, an object which encodes arithmetic information concerning the polynomial’s roots. The most difficult cases arise when the prime p divides the composite degree n . In this case, past research has dealt with all degrees less than or equal to 14. Therefore, our research focuses on our newly-developed methods for computing Galois groups of degree 15 polynomials with 5-adic coefficients. (Received September 07, 2015)