

Meeting: 1001, Evanston, Illinois, SS 22A, Special Session on Special Functions, Orthogonal Polynomials, and their Applications

1001-11-166 **Sharon Frechette** and **Ken Ono*** (ono@math.wisc.edu), Department of Mathematics, University of Wisconsin, Madison, WI 53706, and **Matthew Papanikolas**. *Orthogonal polynomials and coefficients of modular forms.*

Recently we have discovered that the coefficients of certain canonical modular forms are special values (or sums of) of Jacobi polynomials. These observations reduce to a reformulation of the Eichler-Selberg trace formula in terms of Jacobi polynomials. In this lecture I will summarize our findings, and explain some combinatorial and number theoretic consequences. These include combinatorial enumeration problems, and generalizations of Lehmer's Conjecture that Ramanujan's Tau-function never vanishes. (Received August 24, 2004)