

1135-VS-12

Richard Benjamin Gottesman* (rgottesm@ucsc.edu), Santa Cruz, CA. *The algebra and arithmetic of vector valued modular forms*. Preliminary report.

Vector valued modular forms are generalizations of modular forms with a character. They form a graded module over the ring of modular forms. I will explain how understanding the structure of the module of vector valued modular forms allows one to show that the component functions of vector valued modular forms are solutions to certain ordinary differential equations. In certain cases, one can use Hauptmoduls and hypergeometric series to solve these differential equations. One then obtains the q -series expansions of the vector valued modular forms. This perspective gives a viable approach towards proving the unbounded denominator conjecture for modular forms on non-congruence subgroups. (Received August 18, 2017)