

The rationality of vector valued modular forms and implications for a theorem of Borcherds

William McGraw (mcgraw@math.wisc.edu)

University of Wisconsin

Department of Mathematics

Van Vleck Hall

480 Lincoln Drive

Madison, WI 53706

USA

Abstract. In a recent paper [*Duke Math. J.* **97**, 219–233], Borcherds generalizes a theorem of Gross, Kohnen, and Zagier [*Math. Ann.* **278**, 497–562] by showing that the higher dimensional analogues of Heegner divisors are related to the coefficients of certain vector valued modular forms associated to the Weil representation. Borcherds notes that this relationship can be made more explicit if it can be shown that the spaces of these modular forms have bases whose Fourier expansions have only integer coefficients. We show that this is the case, allowing us to state a stronger and simpler version of Borcherds' main theorem.

