

Title:

Primitively universal quadratic forms

Abstract:

In 1999, Manjul Bhargava proved the Fifteen Theorem and showed that there are exactly 204 universal positive definite integral quaternary quadratic forms. We consider primitive representations of quadratic forms and investigate a primitive counterpart to the Fifteen Theorem. In particular, we give an efficient method for deciding whether a positive definite integral quadratic form in four or more variables with odd square-free determinant is almost primitively universal. Also we consider primitive representability of k -ary forms, i.e. the k -ary generalization of 15-theorem.