
Universal quadratic forms over number fields

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A universal form is a positive definite quadratic form with integral coefficients which represents all positive numbers – a classical example over the integers is the sum of four squares $x^2 + y^2 + z^2 + w^2$. I shall discuss some recent results (joint with Valentin Blomer) concerning the number of variables required by a universal form over a real quadratic field. In particular, for a given positive integer n , one can use continued fractions to construct infinitely many such fields which admit no n -ary universal forms.