On Indefinite k-Universal Integral Quadratic Forms Over Number Fields

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Abstract: An integral quadratic form is called k-universal if it represents all integral quadratic forms of dimension k. This is a natural extension of classical universal forms to higher dimensional situation. In this talk, we will prove that a number field F admits an integral quadratic form which is locally k-universal but not globally if and only if k = 1 or 2 and the class number of F is even. When k = 1, there are infinitely many classes of such integral quadratic forms over F. When k = 2, there are only finitely many classes of such integral quadratic forms over F. These are the joint works with Zilong He, Yong Hu and Yang Zhang.