

Spinor regular ternary quadratic lattices.

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It is well known that there is no direct integral analogue to Hasse's local-global principle for lattices. An integral lattice which satisfies a local-global principle (that is, a lattice that represents everything globally which is represented locally at every prime) is called regular. Extending this notion of regularity introduced by Dickson in 1939, a positive definite ternary integral quadratic form is said to be spinor regular if it represents all the positive integers represented by its spinor genus (that is, all positive integers represented by any form in its spinor genus). Jagy conducted an extensive computer search for primitive ternary quadratic forms that are spinor regular, but not regular, resulting in a list of 29 such forms. In this talk, I will discuss recent work with A. G. Earnest in which we verify the completeness of this list.