

Computational Challenges in Perfect form theory.

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Perfect forms are among the most basic construction in lattice theory and are currently known up to dimension 8. We will report on problems related to their computation and in related subject. We will give the classification of configuration of shortest vectors up to dimension 10 and conjecturally 11. We will also explain the setting of the central cone compactification and other reduction theories. We will give variant to subspace of positive definite matrices. Finally we will explain the applications of perfect form theory to topology.