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Quadratic forms and diophantine sets

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The interplay between valuations and certain geometrically rational varieties, in particular quadrics, has turned out to be very fruitful for proving that certain subsets of fields are existentially definable or diophantine. In particular, this has been used by J. Koenigsmann to prove that $\mathbb{Q}\backslash\mathbb{Z}$ is diophantine in \mathbb{Q} . His proof combines several ingredients from classical number theory, involving in particular the Hasse-Minkowski local-global principle for quadratic forms. In my talk I want to highlight some ingredients of proofs for showing that certain subsets of fields are diophantine and some interesting questions for quadratic forms arising from this context.

Summary

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