Birational geometry of quadrics

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We consider the problem of classifying smooth projective quadrics over a given field up to birational equivalence. This problem comes up naturally in the theory of quadratic forms. Pfister forms, for example, play a central role in the problem of birational classification of quadrics. (I will define Pfister forms, which are the nicest class of quadratic forms, and give their basic properties.)

To prove that two quadrics are birational, the only method available is to write down an explicit birational map. We give some new constructions of such maps, leading to new results on birational classification for quadrics of dimension up to about 15.