

Geometry, Physics, and Representation Theory
Northeastern University

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Irrationality problems

Abstract.

Let X be a projective algebraic variety, the set of solutions of a system of homogeneous polynomial equations. Several classical notions describe how “unconstrained” the solutions are, i.e., how close X is to projective space: there are notions of rational, unirational and stably rational varieties. Over the field of complex numbers, these notions coincide in dimensions one and two, but diverge in higher dimensions. In this talk I will discuss classical examples of rational and nonrational varieties, as well as recent advances in this area.