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On measuring the complexity of rational points on projective varieties

By Faltings' theorem, a hyperbolic curve over a number field admits finitely many rational points. One interpretation of this theorem is that the complexity of approximating rational points on projective varieties should be measured on rational curves. Results in this direction are illustrated by the form of Roth's theorem, for projective varieties, as obtained by McKinnon-Roth. Similar considerations apply in the function field setting. In this talk, I will first explain how Schmidt's Subspace Theorem can be used to establish these forms of Roth's Theorem. Second, I will explain how these results can be interpreted using ideas from toric geometry. In particular, I will explain how these theorems are related to Chow forms and Okounkov bodies.