Markoff Surfaces and Strong Approximation

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We investigate the transitivity properties of the group of morphisms generated by Vieta involutions on the solutions in congruences to the Markoff equation as well as to other Markoff type affine cubic surfaces. The results are applied to give forms of strong approximation for integer points, and to sieving, on these surfaces.

This is a joint work with Jean Bourgain and Peter Sarnak.