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**David Zureick-Brown\*** (dzb@mathcs.emory.edu), 628 West College Ave., Decatur, GA 30030,  
and **Anton Geraschenko**. *Gauss composition and integral arithmetic invariant theory*.

Motivated by the problem of representing integers via quadratic forms, Gauss discovered a "composition law" on binary quadratic forms. Gauss's law, while explicit, was a mathematical behemoth; inspired by a Rubik's cube, Bhargava famously rederived Gauss's composition laws in a more user friendly way.

More recently, Bhargava, Gross and Wang began the study of "arithmetic invariant theory, putting this into a modern cohomological framework. I will discuss each of these topics (starting with the elementary setup of Gauss) and describe a recent generalization of this work with Anton Geraschenko. (Received September 23, 2014)