

MIT Department of Mathematics Number Theory Seminar

ENUMERATION OF TOTALLY REAL FIELDS

JOHN VOIGHT

University of Vermont

Abstract: We show how Rolle's theorem can be combined with existing methods to efficiently enumerate totally real number fields of bounded root discriminant—or equivalently, monic polynomials $f(x) \in \mathbb{Z}[x]$ of fixed degree n , all of whose roots are real and whose associated number field has bounded (small) discriminant. We give some detail about our experience in implementing this algorithm in Pari, SAGE, and Magma.

THURSDAY, October 25

4:00 p.m.
Room 2-143