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Lower bounds on number fields with alternating Galois group

Let $N_{n,K}(A_n; X)$ count the number of degree n extensions L/K , whose discriminant has norm bounded by X , and which have alternating Galois group.

I will sketch the proof of a lower bound on $N_{n,K}(A_n; X)$, of size roughly equal to $X^{1/8}$. This improves on a result of Pierce, Turnage-Butterbaugh, and Wood, and adapts Hilbert's original construction of such number fields.

This is joint work with Aaron Landesman and Robert Lemke Oliver.