

MANY CHEERFUL FACTS

presents

Hilbert's Irreducibility Theorem

a talk by Daniel Sparks

2:10–3:00pm on Tuesday, September 23, in 1015 Evans.

Hilbert's irreducibility theorem says that an irreducible polynomial $P \in \mathbb{Q}(T, X)$ retains irreducibility under the substitution $T \mapsto t$ for infinitely many $t \in \mathbb{Z}$. Actually, a significantly stronger statement holds. We will first look at the classical proof by Puiseux expansion, and time permitting, we will talk about how this theorem relates to the inverse problem of Galois theory.

*I am the very model of a modern Major General,
I've information vegetable, animal, and mineral,
I know the kings of England, and I quote the fights historical
From Marathon to Waterloo, in order categorical;
I'm very well acquainted, too, with matters mathematical,
I understand equations, both the simple and quadratical,
About binomial theorem I'm teeming with a lot o' news,
With many cheerful facts about the square of the hypotenuse!*

— Gilbert & Sullivan, $P \circ P$

The website for Many Cheerful Facts is
<http://math.berkeley.edu/~mcf/>