MATEMATISKA INSTITUTIONEN
STOCKHOLMS UNIVERSITET
Avd. Matematik

SJÄLVSTÄNDIGT ARBETE I MATEMATIK

Måndagen den 15 juni kl. 11:00-12:00 presenterar Victor Lisinski sitt arbete "Hilbert's Irreducibility Theorem and Applications to the Inverse Galois Problem" (15 högskolepoäng, grundnivå).

Handledare: Antoine Chambert-Loir och Rikard Bøgvad

Plats: Sal 32, hus 5, Kräftriket

Sammanfattning: We will explore a powerful and very useful result in Number Theory called Hillbert's Irreducibility Theorem. In its most basic form, this theorem states that for any irreducible polynomial $P(T, X)$ with coefficients in the field of rational functions over $\mathbb{Q}$, there is always an element t in $\mathbb{Q}$ for which the polynomial $P(t, X)$ with coefficients in $\mathbb{Q}$ is irreducible (i.e. the polynomial obtained by evaluating the coefficients of P at t is still irreducible). We will apply this theorem to obtain some fundamental results regarding the still unsolved question if all finite groups appear as Galois groups of some Galois extension $K/\mathbb{Q}$. It turns out that Hilbert's Irreducibility Theorem can reduce this problem to the question whether or not every finite group is realizable as a Galois group of some Galois extension of $\mathbb{Q}(T_1, ..., T_n)$. Finally, we show that the alternating group has this property.

Alla intresserade är välkomna!