

Galois groups of differential equations

Galois studied the solvability of algebraic equations by means of group theory. An analogous Galois theory is available for differential equations, with matrix group as Galois groups. Important information about a (differential) field and the structure of its extensions can be obtained via study of the so called inverse problem: Which groups can occur as Galois groups of differential equations?

The talk gives an introduction to the Galois theory of differential equations and shows how new patching methods lead to a solution of the inverse problem over certain function fields.

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