Mathieu groups as Galois groups

Peter Müller, Universität Würzburg

The explicit computation of polynomials with big and interesting Galois groups requires two steps. First, one has to compute the polynomials. This is computationally expensive and often doesn't give a proof that the Galois group is the expected one. So in a second step one has to verify the correctness of the Galois group.

In the talk we present a new method, based on Gröbner bases and power series computations, which handles both steps and works particularly well for the Mathieu groups as Galois groups over function fields.