

# A survey on signature-based Gröbner basis computations

Christian Eder

University of Kaiserslautern Department  
of Mathematics  
PO box 3049  
67653 Kaiserslautern  
ederc@mathematik.uni-kl.de

**Abstract.** This talk is a survey on signature-based Gröbner basis algorithms that was initiated by Faugère's **F5** algorithm in 2002. We explain the general ideas behind the usage of signatures. We show how to classify the various known variants by 3 different orderings. For this we give translations between different notations and show that besides notations many approaches are just the same. Moreover, we give a general description of how the idea of signatures is quite natural when performing the reduction process using linear algebra. This survey shall help to outline this field of active research.