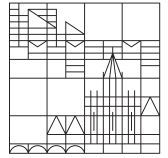


# KWIM-Festtage

celebrating the end of the project  
Konstanz Women in Mathematics

Universität  
Konstanz



## Counting failures of a local-global principle

**Rachel Newton**

*University of Reading, United Kingdom*

**Abstract.** Methods for solving polynomial equations in the integers and rationals have been sought and studied for more than 4000 years. Modern approaches try to piece together 'local' (meaning real and  $p$ -adic) information to decide whether a polynomial equation has a 'global' (meaning rational) solution. I will describe this approach and its limitations, with the aim of quantifying how often the local-global method fails within families of polynomial equations arising from the norm map between fields, as seen in Galois theory. This is joint work with Tim Browning.