

## Randomised Algorithms in Group Theory

The symmetries of a structure are often best described by a group. Therefore groups play an important role in many areas of mathematics and science.

Modern Computer Algebra Systems allow answering many important questions about specific groups. However, groups may have a vast number of elements and answering questions about them by computer is often difficult and time consuming. For example, a group given by two invertible  $5 \times 5$  matrices over a finite field with two elements can have nearly  $10^7$  elements. It is therefore no surprise that many modern algorithms in Group Theory rely on random elements. But can we rely on the answers given to us by a randomised algorithm?