

**Probability arguments in matrix theory***Albrecht Böttcher* (TU Chemnitz)

TUE/110
15:30–15:50

Solving large systems  $Ax = y$  of linear equations is problematic if the norm of  $A^{-1}$  is unknown or very large. The purpose of the talk is to point out that if worst case analysis is replaced by probability arguments, then useful conclusions are possible without knowing the norm of  $A^{-1}$  and the equation may be well-posed even if the norm of  $A^{-1}$  is available but very large. The results are illustrated by estimates for commutators of matrices and by equations emerging in the sampling of multivariate trigonometric polynomials. The talk is based on joint work with Daniel Potts and David Wenzel.