

# GORDON'S INEQUALITY AND CONDITION NUMBERS IN CONIC OPTIMIZATION

**Dennis Amelunxen**

City University of Hong Kong, SAR of China  
damelunx@cityu.edu.hk

The probabilistic analysis of condition numbers has traditionally been approached from different angles; one is based on Smale's program in complexity theory and features integral geometry, while the other is motivated by geometric functional analysis and makes use of the theory of Gaussian processes, notably through Slepian's and Gordon's Inequalities. In this talk we aim at providing a unifying viewpoint on these approaches, and we will showcase how the different methods can be combined. Among other things, we will introduce the concept of conically restricted linear operators, whose associated "spectrum" provides a fresh light on conic condition numbers and intriguing new conjectures about their probabilistic behavior.

*Joint work with Martin Lotz (The University of Manchester, UK).*