

Universität zu Köln

Department
Mathematik/Informatik



Weyertal 86–90
50931 Köln, Germany
Prof. Dr. Alexander Drewitz
Tel.+49 221 470-3364

Einladung zum Oberseminar Stochastik

Am **Donnerstag, 23. Mai 2019, um 16 Uhr im Seminarraum 1 (Raum 005)**
des Mathematischen Instituts, Weyertal 86–90, 50931 Köln. Es spricht:

Prof. Dr. Stephen Muirhead
(Queen Mary University of London)

zum Thema

Fluctuations in the number of level set components of planar Gaussian fields

Abstract: Planar Gaussian fields are a model of spatial noise, and in many applications it is useful to understand the geometric structure of their level sets. There is a natural classification of geometric functionals of the level sets as either 'local' (e.g. length of the level sets, volume of the excursion sets, Euler characteristic of the excursion sets) or 'non-local' (e.g. number of components of the level/excursion sets, percolation of the level/excursion sets) depending on whether there exists an integral representation for the functional. In the case of 'local' functionals, first order properties (e.g. asymptotics for the mean) are easily derived from the Kac-Rice formula, and second order properties (e.g. asymptotics for the variance, central limit theorems) can also be established via Wiener chaos expansions (Kratz–Leon '11, Estrade–Leon '16, Marinucci–Rossi–Wigman '17, Nourdin–Peccati–Rossi '17 etc). For the 'non-local' number of level/excursion sets the analysis is more challenging, and while first order properties were established 10 years ago by Nazarov–Sodin using ergodic theoretical techniques, up until now there have been essentially no second order results. In this talk I will discuss some first steps in this directions, namely proving lower bounds on the variance which are of 'correct' order. Joint work with Dmitry Belyaev and Michael McAuley (University of Oxford).

Alle Interessenten sind herzlich eingeladen.

Die Dozenten der Stochastik