The Graduate School GK1023 *"Identification in Mathematical Models"* and
the DFG-SNF Research Group FOR916 *"Statistical Regularization"* present a

Lecture Series

on

Adaptive Nonparametric Confidence Bands

by

Dr. Richard Nickl
(Cambridge University, UK)

June 23 – 25, 2010

Part I:
Date: June 23, 2010, 11.15 – 12.15
Venue: Seminar Room 5.101, Institute for Mathematical Stochastics (IMS)
Address: Goldschmidtstraße 7, 37077 Göttingen

Part II:
Date: June 24, 2010, 14.15 – 15.15
Venue: NAM Seminar Room, Institute for Numerical and Applied Mathematics (NAM)
Address: Lotzestraße 16-18, 37083 Göttingen

Part III:
Date: June 25, 2010, 14.15 – 15.15
Venue: Seminar Room 5.101, Institute for Mathematical Stochastics (IMS)
Address: Goldschmidtstraße 7, 37077 Göttingen

Abstract. While the last 15 years have seen a wealth of optimal results in adaptive nonparametric function estimation, the theory of adaptive nonparametric confidence sets is more subtle and less developed. This stems mostly from the fact that some negative results due to Low (AoS, 1999) and Genovese and Wasserman (AoS, 2008) led to the conventional wisdom that honest adaptive confidence sets, in particular 'confidence bands', 'do not exist' (in a way that can be made precise).

In this sequence of talks I shall try to lay out some of the main theoretical aspects of the theory of nonparametric confidence bands in function estimation, with a view on recent results that shed new light on the wisdom mentioned above.

Statistical
Regularization