1077-62-2927 **Axel Munk*** (`munk@math.uni-goettingen.de`), Axel Munk, Institute for Mathematical Stochastics, Goldschmidtsr. 7, Goettingen, 37077. *Statistical Multiscale Analysis: From Signal Detection to Nanoscale Photonic Imaging.*

In this talk we will discuss a general concept of statistical multiscale analysis in the context of signal detection and imaging. This provides a large class of fully data driven regularisation methods which allow to localize global measures of regularisation in a locally adaptive manner. We address computational issues as well as the required extreme value theory of the multiscale statistics. A major example will be locally adaptive total variation regularization for deconvolution problems. Our method is applied to problems from nanoscale biophotonic cell microscopy. (Received September 23, 2011)