Some applications of Malliavin Calculus in inference

José Manuel Corcuera, Facultat de Matemàtiques, Universitat de Barcelona

In this talk we will review how Malliavin calculus can be applied to solve inference problems when observations come from a Gaussian Space, the space of random variables generated by an isonormal Gaussian process.  The operators defined in this space, the Malliavin derivative and its adjoint, the Skorohod function, allow to study the behavior of the score function and the asymptotic behavior of the likelihood ratio for local alternatives. In particular they facilitates the proof of the LAMN property as well as the study of the asymptotic laws of statistics for random processes and how close these laws are to the normal distribution.