FIAS Colloquium

Thursday, May 26, 2011, 14:30
FIAS, Ruth-Moufang-Str. 1, 60438 Frankfurt am Main
Lecture hall 0.100

Speaker: Dr. Gunnar Rätsch, Friedrich Miescher Laboratory, Max Planck Society, Tübingen

Title: Towards Empirical Models of the Central Dogma of Molecular Biology

Much of the heritable information of living organisms is encoded on the DNA, which is used as a blueprint for producing functional RNAs and proteins. While the basic mechanisms of RNA and protein processing are very well understood, our detailed understanding of these processes, in particular their quantitative and dynamic nature, is still very limited. The recent revolution in sequencing technologies allows us to observe the molecular state of biological systems in unprecedented detail. Such technologies enable fast-track research for deepening our understanding of molecular processes. They allow, for the first time, to build accurate statistical models of these processes based on a rich repertoire of empirical observations. I will outline our work on Machine Learning based computational models, on deep sequencing analysis, and on statistical genetics approaches to build comprehensive models of the central dogma of biology.