Description for the general public

Excursions of multidimensional Gaussian processes appear in a natural way in various theories, as extreme value theory of random processes. Important motivation to analyze high excursion problems stems from their relations with stochastic modelling, in such fields as, for example, multivariate ruin problems or stochastic networks.
The aim of this research project is to study properties of random variables describing entrance and sojourn time in a given set and to work out techniques allowing for investigation of their asymptotics.
Important part of the project is dedicated to study problems that arise in multivariate stochastic modelling.