

Kolloquium „Statistische Methoden in der empirischen Forschung“

Wann: 28. Januar 2020, 17:00 – 18:30 Uhr

Wo: Robert Koch-Institut | Nordufer 20 | 13353 Berlin (Wedding),
S41, S42, U9 Westhafen | U9, Bus 142 Amrumer Str

Ernst C. Wit (Institute for Computational Science, Università della Svizzera italiana)

Network Data Science in Biological Applications

Society and industry have started to consider network processes that are larger and more complex than ever before. Large consumer companies hold a trove of data about the linked spending patterns of its consumers. Mobility providers, from airlines to rental car companies, deal daily with optimization of stochastic logistical network problems. Prediction problems such as credit risk in finance, drug targets in biotech and efficiency in health care involve large networks, loosely defining the field of study of Network Data Science.

The richness of the underlying network processes, the size of the data, the complexity of the network models and the computationally demanding nature of the inference procedures all mean that Statistical Network Science has become a paradigm for modern statistics, spanning from Big Data to high-dimensional inference. In this talk, I will give an overview of the field of Network Data Science, particularly focusing on biological applications, such as showing how it involves causal inference in epidemiology, epistasis detection in GWAs studies, clonal dynamics in clinical gene therapy, but also species diversification of animals and plants.