Testing for Global Covariate Effects in Dynamic Interaction Event Networks

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Department of Statistics, Ludwigstr. 33, Room 144
and online via Zoom (Link)
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In statistical network analysis it is common to observe so called interaction data. Such data is characterized by actors forming the vertices and interacting along edges of the network, where edges are randomly formed and dissolved over the observation horizon. In addition covariates are observed and the goal is to model the impact of the covariates on the interactions. We distinguish two types of covariates: global, system-wide covariates (i.e. covariates taking the same value for all individuals, such as seasonality) and local, dyadic covariates modeling interactions between two individuals in the network. Existing continuous time network models are extended to allow for comparing a completely parametric model and a model that is parametric only in the local covariates but has a global non-parametric time component. This allows, for instance, to test whether global time dynamics can be explained by simple global covariates like weather, seasonality etc. The procedure is applied to a bike-sharing network by using weather and weekdays as global covariates and distances between the bike stations as local covariates. This is joint work with Enno Mammen (Heidelberg University) and Wolfgang Polonik (UC Davis).

Biography:
Alex started as Juniorprofessor for Statistics at Leipzig University in April 2022. Before starting in Leipzig and after finishing his PhD at Heidelberg University, he was a PostDoc at University of Mannheim, KU Leuven and The London School of Economics and Political Science. Alex's research interests lie in non-parametric statistics/econometrics with a particular focus on network models, models with measurement error and high-dimensional problems.