

A cordial invitation to the talk of the  
Brown Bag Seminar  
*Recent Developments in Data Science:*

## **Prediction Equilibrium for Dynamic Traffic Assignment**

By  
Prof. Dr. Tobias Harks

Date: 24.11.2022 (Thursday) at 12:00

Location: Room 301 (WIWI)

Link and further  
information: Course 39740 Seminar: Doctoral Seminar "Recent  
Developments in Data Science" in Stud.IP

**Abstract:**

We study a dynamic traffic assignment model, where agents base their instantaneous routing decisions on real-time delay predictions. We formulate a mathematically concise model and derive properties of the predictors that ensure a dynamic prediction equilibrium exists. We demonstrate the versatility of our framework by showing that it subsumes the well-known full information and instantaneous information models, in addition to admitting further realistic predictors as special cases. We complement our theoretical analysis by an experimental study, in which we systematically compare the induced average travel times of different predictors, including a machine-learning model trained on data gained from previously computed equilibrium flows, both on a synthetic and a real road network.

**Speaker:**

Prof. Dr. Tobias Harks

Tobias Harks is Professor for Mathematical Optimization at the University of Passau, Germany. He held previous positions at the University of Augsburg and Maastricht University. His research interests include discrete and continuous optimization, algorithmic game theory, bilevel optimization and the theory of dynamic equilibrium flows.