Universität Passau
Fakultät für Informatik und Mathematik

Kolloquium

von Frau Dr. Hannaneh Akrami,
Universität Bonn

Fair Division: Simplifications and Improvements on EFX

auf Einladung von Prof. Dr. Tobias Harks
am Mittwoch, den 7. Mai 2025 von 15:00 – 16:00 Uhr
im SR 034, IM, Innstr. 33
der Universität Passau

Abstract: The existence of EFX allocations is a fundamental open problem in discrete fair division. Given a set of agents and indivisible goods, the goal is to determine the existence of an allocation where no agent envies another following the removal of any single good from the other agent's bundle. Since the general problem has been illusive, the focus has shifted to restricted settings. We prove the existence of EFX allocations with three agents, restricting only one agent to have an MMS-feasible valuation function (a strict generalization of nice-cancelable valuation functions introduced by Berger et al. which subsumes additive, budget-additive and unit demand valuation functions). The other agents may have any monotone valuation functions. Our proof technique is significantly simpler and shorter than the proof by Chaudhury et al. on existence of EFX allocations when there are three agents with additive valuation functions and therefore more accessible.

This is based on a joint work with Noga Alon, Bhaskar Ray Chaudhury, Jugal Garg, Kurt Mehlhorn, and Ruta Mehta. The extended abstract of this work is published in EC 2024 and the full version in Operations Research 2024.

Biography: Dr. Hannaneh Akrami is a postdoc researcher at the University of Bonn in the Algorithms and Optimization group chaired by Professor László Végh. She defended her PhD in March 2025 at Max Planck Institute for Informatics under the supervision of Kurt Mehlhorn. Her field of research is discrete fair division.