



Fakultät für Ingenieurwissenschaften, Informatik und Psychologie

Informatik-Fachvortrag

Mittwoch, den 24. Juni 2026, 10:30 Uhr
Universität Ulm, Oberer Eselsberg
Gebäude O27, Raum 531

Herr Prof. Dr. Amit Sinhababu
Chennai Mathematical Institute (CMI)

spricht zum Thema

Maximum matching for general graphs is in catalytic logspace

The study of space-bounded computation is a central theme in complexity theory, with a long line of work investigating the power and limitations of logarithmic-space algorithms. A recent direction in this area focuses on models that augment classical space bounds with auxiliary resources, such as catalytic space, where a large workspace is available but must be returned to its initial state at the end of the computation. This model, introduced by Buhrman, Cleve, Koucký, Loff, and Speelman, has led to surprising algorithmic developments and a refined understanding of the role of reversibility and space reuse in computation. One of the key algorithmic results in this area is that bipartite maximum matching can be computed in catalytic logspace (CL) with a polynomial-time bound (CLP) by Aggarwala and Mertz 2025. We show that we can construct a maximum matching in general graphs in CL, and, in fact, in CLP. We first show that the size of a maximum matching in general graphs can be determined in CL. Our algorithm is based on a linear-algebraic algorithm for maximum matching by Geelen. We then show that this algorithm, along with some new ideas, can be used to find a maximum matching in general graphs. Using a similar algorithm of Geelen, we also solve the maximum rank completion problem in CL.

Es laden ein die Dozenten der Fakultät für Ingenieurwissenschaften, Informatik und Psychologie.

Ulm, den 03.06.2026

gez. Prof. Dr. Jacobo Torán