

Oberseminar Theoretische Informatik
Sommersemester 2006

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Fixed-Parameter Tractability Results for Full-Degree Spanning Tree and Its Dual

Mo, 17.07.2006 um 14 Uhr (s.t.) im SR 226 (Carl-Zeiß-Str. 3, 2. Stock).

We provide first-time fixed-parameter tractability results for the NP-complete problems Maximum Full-Degree Spanning Tree and Minimum-Vertex Feedback Edge Set. These problems are dual to each other: In Maximum Full-Degree Spanning Tree, the task is to find a spanning tree for a given graph that maximizes the number of vertices that preserve their degree. For Minimum-Vertex Feedback Edge Set the task is to minimize the number of vertices that end up with a reduced degree. Parameterized by the solution size, we exhibit that Minimum-Vertex Feedback Edge Set is fixed-parameter tractable and has a linear-size problem kernel. Maximum Full-Degree Spanning Tree, which is $W[1]$ -hard, has a linear-size problem kernel when restricted to planar graphs. Moreover, we present subexponential-time algorithms in the case of planar graphs.

Internetseite der Veranstaltung:

<http://theinf1.informatik.uni-jena.de/teaching/ss06/oberseminar-ss06>