

**Oberseminar Theoretische Informatik**  
Sommersemester 2007

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## **Optimal Edge Deletions for Signed Graph Balancing**

Mo, 23.04.2007 um 14 Uhr (c.t.) im SR 225 (Carl-Zeiß-Str. 3, 2. Stock).

The **BALANCED SUBGRAPH** problem (edge deletion variant) asks for a 2-coloring of a graph that minimizes the inconsistencies with given edge labels. It has applications in social networks, systems biology, and integrated circuit design. We present an exact algorithm for **BALANCED SUBGRAPH** based on a combination of data reduction rules and a fixed-parameter algorithm. The data reduction is based on finding small separators and a novel gadget construction scheme. The fixed-parameter algorithm is based on iterative compression with a very effective heuristic speedup. Our implementation can solve biological real-world instances exactly for which previously only approximations [DasGupta et al., WEA 2006] were known.

Internetseite der Veranstaltung:

<http://theinf1.informatik.uni-jena.de/teaching/ss07/oberseminar-ss07>