

**Oberseminar Theoretische Informatik**  
Sommersemester 2008

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***s*-Plex Cluster Graph Editing**

Monday, June 16 at 2pm (c.t.) in room 3319 (Ernst-Abbe-Platz 2, floor 3).

We introduce the NP-hard *s*-PLEX EDITING problem as a generalization of the well-studied CLUSTER EDITING problem, both finding applications in graph-based data clustering. Instead of transforming a given graph by a minimum number of edge modifications into a disjoint union of cliques (this is CLUSTER EDITING), the task in the case of *s*-PLEX EDITING is now to transform a graph into a disjoint union of *s*-plexes. Herein, an *s*-plex denotes a vertex set inducing a (sub)graph where every vertex has edges to all but at most *s* vertices in the *s*-plex. Cliques are 1-plexes. The advantage of *s*-plexes for  $s \geq 2$  is that they allow to model a more relaxed cluster notion, also reflecting inaccuracies of the input data. We develop an effective problem kernelization, a forbidden subgraph characterization, and a depth-bounded search tree for *s*-PLEX EDITING, yielding efficient fixed-parameter algorithms with respect to the standard parameter “number of edge modifications allowed”.

Homepage:

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