

**Kolloquium
auf Einladung
von Prof. Dr. Ignaz Rutter
zum Vortrag von
Frau Anais Villedieu,
Technische Universität Wien
mit dem Titel
Splitting plane graphs to outerplanarity
am Dienstag, 14.3.2023
ab 14:00 Uhr
im Raum 242, IM, Innstr. 33
der Universität Passau**

Abstract: Vertex splitting replaces a vertex by two copies and partitions its incident edges amongst the copies. This problem has been studied as a graph editing operation to achieve desired properties with as few splits as possible, most often planarity, for which the problem is NP-hard. We are interested by the problem of minimizing the number of splits to turn a plane graph into an outerplane one. We tackle this problem by establishing a direct connection between splitting a plane graph to outerplanarity, finding a connected face cover, and finding a feedback vertex set in its dual. We show NP-completeness for plane biconnected graphs as well as a polynomial-time algorithm to solve this problem in maximal planar graphs.