



# SEMINARIUM MATEMATYKA DYSKRETNA

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## ON GRAPH PARTITION INTO CONNECTED INDUCED SUBGRAPHS

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In this talk, we will present a survey on graph partition into connected induced subgraphs, in terms of structure, algorithm, complexity... In particular, we will speak on the notion of AP graphs, defined below, and its variations. Let  $n$  be an integer. A *decomposition of  $n$*  is a sequence  $s = (n_1, \dots, n_k)$  of integers such that  $n_1 + \dots + n_k = n$ . Let  $G = (V, E)$  be a graph with  $n$  vertices and  $s = (n_1, \dots, n_k)$  a decomposition of  $n$ . We say that  $G$  is *s-partitionable* if and only if it exists a partition of  $V = V_1 \cup V_2 \cup \dots \cup V_k$ , such that for each  $i$ :

- $|V_i| = n_i$
- the subgraph induced by  $V_i$  is connected.

A graph  $G$  is said *arbitrarily partitionable* (AP for short) iff  $G$  is  $s$ -partitionable for any decomposition  $s$  of  $n$ .