SEMINARIUM
MATEMATYKA DYSKRETNA

czwartek, 3 listopada 2011 r. godz. 12.00, s. 304 A3/A4

IMPOSING VERTEX-PART RELATIONSHIPS WHILE ARBITRARILY PARTITIONING A GRAPH

Julien Bensmail
LaBRI, Bordeaux, France

Let $G = (V, E)$ be a graph with order n. A partition $\tau = (\tau_1, \dots \tau_k)$ of n, with $\tau_1 \geqslant \dots \geqslant \tau_k$, is said to be realizable in G if it is possible to partition V into k parts $V_1, \dots, V_k$ in such a way that, for any i in $[1, k]$, the subgraph of G induced by V_i is connected and with order τ_i. G is said arbitrarily partitionable if every partition of n admits a realization in it. Several versions of this property, augmented with some stronger constraints, have been introduced and studied, especially with regards to the family of trees. After a brief reminder of the main results, we will focus ourselves on the case of 2-connected graphs. For this purpose, we will introduce a stronger version of the property of being arbitrarily partitionable, in which it is always possible to realize τ in G in such a way that, given any size τ_i of τ and any vertex v of G, v belongs to a part of size τ_i. Once the 2-connectivity of graphs partitionable in this way highlighted, we will show that there exists an infinite number of them, focusing mainly on some particular classes of graphs, like cylinders and balloons.