P. Pralat. The game is the following. Initially, all edges are dirty. Then, place some *brushes* on some vertices of a graph. Now, a vertex v can be cleared if the number of brushes it contains is at least the number of its incident dirty edges. in this case, the brushes at v cross each contaminated edges incident to v. Let $b(G)$ be the minimum number of brushes needed to clear all edge of $G = (V, E)$. $b(G) = \min_{\Pi \ permutation \ of V} \sum_{v \in V} N^+(v) - N^-(v)$ (N^+ and N^- being defined according to Π)

Now, consider the parallel version of the game : at each step, all vertices that could be cleared must be (during the same step). Moreover, the strategy must permanently clear the graph, meaning that, when all edges have been cleared, the graph must be cleared again, starting from the position reached at this step.

For instance, in a odd ring, two brushes are not sufficient anymore to clear the ring permanently, because after the last step, the 2 brushes would be on different vertices, and it won't be possible to continue.

Let $\bar{b}(G)$ be the smallest number of brushes required for a permanent parallel strategy on G. Comparison between $b(G)$ and $\bar{b}(G)$? What is the limit $\bar{b}(K_n)/n^2$?

F. Mazoit. Let G be a graph with a planar embedding. Let an *angle* be two edges sharing a vertex that are incident to a same face. The problem is to find a planar graph G with the maximum of number k of disjoint angles, such that contracting the $2k$ edges of these angles decreases the treewidth of G by $2k$.

Ex : take a planar embedding of K_4 : contracting two edges incident to the central node decreases the treewidth from 3 to 1.

D. Thilikos. Consider the edge-search game. Let $es(G)$ denote the edge-search-number of G, and $t(G)$ be the smallest number of steps required for $es(G)$ cops to capture an invisible active fugitive (here, several cops may move simultaneously).

Now, consider the same game when the robber is drunk, i.e., the robber strategy follows a random walk. Let $t'(G)$ be the smallest number of steps equired for $es(G)$ cops to capture a drunk invisible fugitive. For any graph G, $\frac{t'(G)}{t(G)} = 1/2$?

G. Hahn/ A. Quilliot (?). Let G be a graph with genus g. $cn(G) \leq g + 3$?

cn denotes the cop number of G : in the turn-by-turn game : at each turn, the cops, and then the (visible) robber, move from there current position to a neighbor (they may remain on the same vertex)

This holds for $g = 0$ [Aigner and Fromme 84] and $cn(G) \leq 3g/2 + 3$ [Schroder 01] (more simple proof : $cn(G) \leq 2g + 3$ by Quillot 85)

G. Hahn. Is there a cop-win graph (i.e., a graph with cop number one in the turn by turn game) where no "monotone" shortest strategy using one cop exists ? In other word, in there a graph in which, in any strategy using one cop with smallest number of steps, one vertex has to be visited twice by the cop

N. Nisse. In the cops and robber game (turn-by-turn), when the robber is faster, i.e., it may move along two edges at each step, what is the cop-number of a square n*n grid ?

lower bound $\Omega(\sqrt{\log n})$ [Nisse, Suchan 08], upper bound $O(n)$.