Seminar on Combinatorial Computing
November 2, Wednesday, 6:30 p.m.
Room 6417, Graduate Center
365 Fifth Avenue, New York

Online conflict-free coloring for intervals

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Abstract

An interval containing n points is given (points are linearly ordered in the interval). A conflict-free coloring is an assignment of colors to the points, such that for every subinterval S, there is a color that appears exactly in one point of S. We try to find conflict-free coloring algorithms that reuse colors as much as possible.

In the online dynamic version of the problem, points are inserted in succession, between any existing points, and a color must be assigned to each point, so that the coloring is conflict-free at all times.

Time permitting, we will present (a) the inadequeacy of a full greedy coloring scheme, (b) a logarithmic online deterministic algorithm in a model where the absolute positions of points are given (about $2 \log n$ colors used, at

most), and (c) a randomized expected logarithmic algorithm that colors always correctly against an oblivious adversary that has to commit on a permutation before revealing the first point (uses at most $1 + log_{3/2} n$ colors).

For further information contact Janos Pach at pach@cims.nyu.edu, or visit our website
http://www.math.nyu.edu/p̃ach/public_html/combinatorics_seminar.html