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Algorithmic Computation of Arrangements of Lines

Thursday, 10 March 2022 15:10 (30 minutes)

We develop an algorithm based on a greedy algorithm of Cuntz from his 2021 paper "A Greedy Algorithm to Compute Arrangements of Lines in the Projective Plane," to find arrangements of lines for which a "Mod 2-net coloring" is possible. In such a coloring we color the lines of the arrangement with one of two colors so, that for all lines going through a given point, we have an even number of lines of each color. The question of Mod 2-nets arised in a talk of Yoshinaga based on his 2020 paper "Double coverings of arrangement complements and 2-torsion in Milnor fiber homology," where it was used to show 2-torsion in the homology of the Milnor fiber of an arrangement. Our talk is based on our Masters Thesis.

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