Arrangements of Double Pseudolines

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Abstract

An arrangement of double pseudolines is a finite family of at least two homotopically trivial simple closed curves embedded in the real projective plane, with the property that any two meet exactly four times, at which points they meet transversely, and induce a cell structure on the real projective plane.

In this talk I will show that any arrangement of double pseudolines is isomorphic to the dual family of a finite family of pairwise disjoint convex bodies of a topological point-line incidence geometry on the real projective plane. The proof relies on an extension to arrangements of double pseudolines of the homotopy theorem for arrangements of pseudolines of G. Ringel (1956).

An axiomatic characterization of the class of isomorphism classes of indexed arrangements of oriented double pseudolines will be also discussed and similar results concerning arrangements of double pseudolines in Möbius strips will be reported.

(This is joint work with my PhD student Luc Habert.)