Accepted paper with abstract, SoCG'09

Luc Habert and Michel Pocchiola

Arrangements of Double Pseudolines

We define an arrangement of double pseudolines as a finite family of at least two homotopically trivial simple closed curves embedded in a projective plane, with the property that any two meet in exactly four points, where they cross, and induce a cell structure on the projective plane. We show that any arrangement of double pseudolines is the dual family of a family of pairwise disjoint convex bodies of a projective plane endowed with a topological point-line incidence geometry, and we provide a simple axiomatic characterization of the class of isomorphism classes of indexed arrangements of oriented double pseudolines.