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*The homotopy type of the complement of an arrangement of hyperplanes.*

Consider an arrangement, a finite set of complex projective lines in the complex projective plane. One of the main areas of study in arrangement theory is determining how the intersections of the hyperplanes (combinatorics) affects the topology of the complement of the arrangement.

It is known that the combinatorics do not determine the topology in all cases. Rybnikov showed in 1993 that there exist two arrangements that have the same combinatorics, but the fundamental groups of complements of the arrangements are not isomorphic. In 1997, Fan defined a graph that is determined by the combinatorics of the arrangement. It is shown that if the graph is a forest of trees, then the fundamental group of the complement is a direct sum of free groups. The converse of this statement was proven by Eliyahu, Liberman, Schaps and Teicher in 2009.

In this talk we will show that any two arrangements in the projective plane with fundamental groups isomorphic to the same direct sum of free groups must have homotopy equivalent complements. We show that this occurs even though the combinatorics of the arrangements may differ. (Received September 17, 2010)