Real and Complex Line Arrangements

Ali Ulaş Özgür Kişisel
Department of Mathematics
Middle East Technical University

Abstract

There are many natural problems of interest concerning the arrangement of lines in the real or complex projective plane related to the combinatorial properties of the resulting cell complex. In this talk I first wish to introduce some of these problems and some recent developments about them. Afterwards, I will present certain realizability results about a certain subclass of line arrangements, called nets, that we obtained in our joint work with Alp Bassa. These results use techniques from the theory of 4-manifolds, more specifically log characteristic classes.