

## Emanuele Delucchi (Binghamton)

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### Making Arrangements

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#### Abstract for the Combinatorics Seminar 2008 February 5

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At the beginning of my stay in Binghamton I would like to present a rather informal survey of my research activity. The aim of the talk is to give some basic definitions and results; on this basis we will make arrangements for a later talk that will elaborate more specifically on some choice out of the themes mentioned.

“Arrangements” (of hyperplanes in a complex vector space) are actually in the focus of my interest. The pattern of mutual intersections of a given set of such hyperplanes gives rise to a very rich combinatorial structure, which is still not completely understood in the greatest generality. On the other hand, the topology of the space obtained by removing the given hyperplanes from the ambient vector space is also interesting. The most fun of all, however, is to try to understand the link between the combinatorics and the topology. This is a very active research field that still bears many open questions.

In this talk I will focus on the so-called “ $K(\pi,1)$ -problem”. In particular, I will give a combinatorial description of the covering spaces and an application of discrete Morse theory to arrangements of real hyperplanes.

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