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The category of noncrossing partitions

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The main purpose of this project is to explain in elementary combinatorial terms the results of my *joint work with Kent Orr, Jerzy Weyman and Gordana Todorov*. I will define the category NP(n) having noncrossing partitions as objects and binary forests (unions of binary trees) as morphisms. I will use CAT(0) spaces to show that the classifying space of this category is a $K(\pi, 1)$ where pi is the picture group of type A_{n-1} with straight orientation. The explicit construction of its classifying space allows for the computation of the cohomology of this group. It is free abelian in every degree with rank given by the ballot numbers.

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