Vector Bundles and Combinatorics

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Abstract

Vector bundles are important objects in topology and various flavors of geometry. In algebraic geometry they provide invariants of spaces as well as powerful notions of positivity. I'll give an introduction to vector bundles in the special case when the space is a toric variety. In this setting everything can be made into a wonderful combination of linear algebra with some discrete data. Then I'll make some comments on how vector bundles are being used to port powerful structural principles and intuition from algebraic geometry into combinatorics.

Keywords: invariant of spaces, toric vatiety, discrete data.