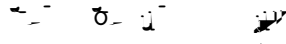


Extremal graph theory and flag algebra calculus

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Extremal graph theory asks questions such as how many edges can there be in a graph network if it contains no triangles. Although there are many deep results in this area, numerous tantalising conjectures remain open.

Recently Razborov introduced a dramatic new tool to this field: the flag algebra calculus. This has given rise to a huge amount of work, some of it answering decades-old questions that were previously out of reach.

My three lectures will start by giving some background, including a basic introduction to graph theory, the main results in extremal graph theory, and some simple applications to other areas of mathematics. I will