

# HYPERGRAPH COLORINGS AND EXPLICIT FORMULAS FOR OTTAVIANI'S INVARIANT OF CUBIC THREEFOLDS

## Abstract

We provide explicit combinatorial formulas for Ottaviani's degree 15 invariant which detects cubics in 5 variables that are sums of 7 cubes. Our approach is based on the chromatic properties of certain graphs and relies on computer searches and calculations. In this talk we also highlight connections of our approach to the border rank of matrix multiplication problem.