Twistors, vector bundles, and nonnegative polynomials

Abstract:
For $n>2$ there exist real polynomials in n variables, which are nonnegative everywhere, but cannot be written as a sum of squares of polynomials. The subject of such polynomials forms a rapidly evolving area of real algebraic geometry with applications to semidefinite programming and polynomial optimization problems.

In the talk I shall describe how twistor theory inspired a new construction of such polynomials.

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