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Non-negative Hermitian polynomials and quotients of squared norms

Hilbert's 17th problem asks whether any non-negative polynomial can be written as a sum of squares of rational functions. While a positive answer was established by Artin, there is no known way to construct the rational functions. In this talk we describe our solution of a Hermitian analog of Hilbert's 17th problem posed by John D'Angelo about 14 years ago.