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The MTV machine

Mukhin, Tarasov and Varchenko developed a "machine" for solving certain algebraic systems of equations, which arise in several places, including: Schubert calculus, algebraic curves, linear series, Wronskians of polynomials, mathematical physics. differential equations, and control theory. The machine is quite remarkable. Essentially, it transforms a hard system of algebraic equations into an easy system of differential equations. In this talk, I will attempt to explain how the machine works, and offer a new explanation for why it works.