Algebraic geometric approach to accessibility and observability of polynomial control systems

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In control theory, accessibility and observability are fundamental concepts, which can be interpreted as surjectivity and injectivity of some iterated mappings, respectively. For nonlinear control systems, one of the common problems for verifying these properties is that the sufficient number of iterations is unclear. In this talk, on the basis of results of algebraic geometry, I will show that for polynomial control systems, accessibility and observability can be verified in finite time.