



THE UNIVERSITY OF
CHICAGO

THE COMMITTEE ON
COMPUTATIONAL AND
APPLIED MATHEMATICS

SPECIAL COLLOQUIUM

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Complexity of Computing Complex Zeros of Structured Polynomial Systems

TUESDAY, November 11th at 4:00 PM

Jones 303, 5747 S. Ellis Ave. Chicago, IL 60637

ABSTRACT

Can one solve polynomial systems in polynomial time? This question received different answers in different contexts. The NP-hardness of deciding the feasibility of a polynomial system does not preclude efficient algorithms for computing the complex zeros of polynomial systems with as many equations as variables.

Smale's 17th problem is a clear-cut formulation of this problem in a numerical setting. We report on progress that gives a positive answer to a refinement of Smale's question for structured systems.

(Joint work with Felipe Cucker and Pierre Lairez, see <https://arxiv.org/abs/2010.10997>.)

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