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Ann E. Rogers* (arogers1936@gmail.com), DePaul University, Department of Mathematical Sciences, 2320 N. Kenmore Ave., Chicago, IL 60614. *The Jacobian Conjecture: A survey of some recent results.*

The Jacobian Conjecture: A survey of some recent results

Abstract

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For nearly 80 years, legions of attempts to prove the Jacobian Conjecture have failed. Deceptively simple to state, the Jacobian Conjecture posits that any locally injective polynomial mapping of n -dimensional complex affine space shall always be globally invertible. Although the Conjecture has been proven for limited cases, it has yet to be solved in general. This survey will include some recent progress towards solving what S. Smale considers to be one of the most important open problems for 21st century mathematicians. Particular attention will be given to work which has proven that the Jacobian Conjecture is equivalent to other statements, including the Dixmier Conjecture, which asserts that any endomorphism of the Weyl algebra $A_n(k)$ over a field k of characteristic zero must be an automorphism. (Received September 22, 2017)