

The 2-dimensional complex Jacobian conjecture: some classes satisfying the conjecture and a proof of the conjecture up to degree 104

Nguyen Thi Bich Thuy

São Paulo State University (UNESP)

Introducing so-called "non-proper variables", we study the algebraic structure of the non-proper polynomial mappings $F : \mathbb{C}^2 \rightarrow \mathbb{C}^2$ and classify them under the nowhere vanishing Jacobian condition. We obtain some explicit classes of polynomial mappings satisfying the conjecture. Moreover, by Newton polygon approach, we prove the conjecture up to degree 104, improving Moh's boundary (1983) from 100 to 104. Reference: Thuy Nguyen, Some classes satisfying the 2-dimensional Jacobian conjecture and a proof of the complex conjecture until degree 104. Quaestiones Mathematicae, Vol. 48(2), 1-15, 2025.

In Special Session 26 on Foliations and Singularities at the Mathematical Congress of the Americas 2025.