

Exponential polynomials over \mathbb{C}

Giuseppina Terzo
Seconda Università degli Studi di Napoli

Abstract

Zilber in [1] proved that the class of exponential algebraically closed fields of characteristic 0, satisfying a natural $\mathcal{L}_{\omega_1\omega}(Q)$ sentence, expressing strong exponential closure, countable closure and cyclicity of the kernel of exponentiation, has a unique model in every uncountable cardinality. He conjectured that the complex exponential field is the unique such model of cardinality 2^{\aleph_0} . Marker in [2] investigated a simple case of the strong exponential closure axiom, assuming Schanuel's Conjecture. Following this line of research, we examine the next natural cases of the strong exponential closure axiom for the complex exponential field. Assuming Schanuel's Conjecture, we prove that certain exponential polynomials have always a solution in \mathbb{C} which is generic.

References

- [1] B. Zilber: 'Pseudo-exponentiation on algebraically closed fields of characteristic zero', *Annals of Pure and Applied Logic*, (1) 132, (2004), 67-95.
- [2] D. Marker: 'A remark on Zilber's pseudoexponentiation,' *Journal of Symbolic Logic*, (3), 71, (2006), 791-798.