Graduate

Number Theory Lecture

On transcendental entire functions mapping $\mathbb{Q}$ into itself.

Jean Lelis
University of Brasilia

Date: 10/10/2019
Time: 16:00

Auditorium / MAT

Abstract. In a recent paper [1], we proved that there is no a transcendental entire function $f(z) \in \mathbb{C}[[z]]$ such that $f(\mathbb{Q}) \subseteq \mathbb{Q}$ and $\text{den}(f(p/q)) = O(q)$, for all rational number p/q, with q sufficiently large. This result is associate with a problem proposed by Mahler [2] about Liouville numbers, in 1984. In this lecture, we are discuss the problem of Mahler and its relation with transcendental entire functions mapping $\mathbb{Q}$ into itself.

References

[1] Lelis, Jean; Marques, Diego; On transcendental entire functions mapping Q into itself, *J. Number Theory* 206 (2020), 310–319.

[2] Mahler, Kurt; Some suggestions for further research, *Bull. Aust. Math. Soc.*, 29 (1) (1984) 101-108.