LINEARIZABILITY OF POWER SERIES OVER A DISCRETE VALUATION RING OF POSITIVE CHARACTERISTIC

SPEAKER: RUFEI REN

Michael Herman and P–J Yoccoz prove that every power series $f(T) = \lambda T + \sum_{i=2}^{\infty} a_i T^i \in \mathbb{Q}_p[\![T]\!]$ such that $|\lambda| = 1$ and λ is not a root of unity is linearizable. They asked the same question for polynomials over $\mathbb{F}_p[\![T]\!]$, a completed discrete valuation ring of positive characteristic.

In this paper, we prove that, on opposite, most such polynomials in this case are more likely to be non-linearizable. More precisely, we give a sufficient condition of a polynomial in this form being linearizable. In particular, we prove that any polynomial of the form $\lambda T + a_2 T^2 + a_p T^p$ is not linearizable.

Date: July 14, 2018.

2010 *Mathematics Subject Classification.* 11T23 (primary), 11L07 11F33 13F35 (secondary).

Key words and phrases. Artin–Schreier–Witt towers, T-adic exponential sums, Slopes of Newton polygon, T-adic Newton polygon for Artin–Schreier–Witt towers, Eigencurves.