

# THE T-ADIC LITTLEWOOD CONJECTURE IS FALSE

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The Littlewood and the  $p$ -adic Littlewood conjectures are famous open problems on the border between number theory and dynamics. In a joint work with Faustin Adiceam and Fred Lunnon we show that the analogue of the  $p$ -adic Littlewood conjecture over function fields is false over  $\mathbb{F}_3((1/t))$ . The counterexample is given by the series whose coefficients are the regular paper folding sequence, and the method of proof is by reduction to the non vanishing of certain Hankel determinants. The proof is computer assisted and uses substitution tilings of  $\mathbb{Z}^2$  and a generalisation of Dodson's condensation algorithm for computing the determinant of a matrix.