



Der Wissenschaftsfonds.



Institut für Analysis und Zahlentheorie

Zahlentheoretisches Kolloquium

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Seminarraum Analysis und Zahlentheorie

Universal Skolem Sets

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Abstract: The celebrated Skolem–Mahler–Lech theorem asserts that if $\mathbf{u} := (u_n)_{n \geq 0}$ is a linearly recurrent sequence of integers then the set of its zeros, that is the set of positive integers n such $u_n = 0$, form a union of finitely many infinite arithmetic progressions together with a (possibly empty) finite set. Except for some special cases, is not known how to bound effectively all the zeros of \mathbf{u} . This is called *the Skolem problem*. In this talk we present the notion of a *universal Skolem set*, which an infinite set of positive integers \mathcal{S} such that for every linearly recurrent sequence \mathbf{u} , the solutions $u_n = 0$ with $n \in \mathcal{S}$ are effectively computable. We present a couple of examples of universal Skolem sets, one of which has positive lower density as a subset of all the positive integers.

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