

# QUASIANALYTIC ILYASHENKO ALGEBRAS

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In 1923, Dulac published a proof of the claim that every real analytic vector field on the plane has only finitely many limit cycles (now known as Dulac's Problem). In the mid-1990s, Ilyashenko completed Dulac's proof; his completion rests on the construction of a quasianalytic class of functions. Unfortunately, this class has few known closure properties. For various reasons I will explain, we are interested in constructing a larger quasianalytic class that is also a Hardy field extending various known Hardy fields. This can be achieved by adapting Ilyashenko's idea of superexact asymptotic expansion to convergent transmonomials.

Joint work with Zeinab Galal and Tobias Kaiser.