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A big Picard theorem and the Manin-Mumford conjecture

In 1981 the present speaker proved the following theorem as a generalization of Big Picard's Theorem: *If $f : \Delta^* \to A$ is a holomorphic curve from a punctured disk Δ^* into a semi-abelian variety A with an essential singularity at the puncture, then the Zariski closure of $f(\Delta^*)$ has a positive dimensional stabilizer group B and the composite $q_B \circ f : \Delta^* \to A/B$ with the natural morphism $q_B : A \to A/B$ has at most a pole at the puncture.*

In arithmetic geometry, 1983, M. Raynaud proved the Manin-Mumford conjecture stated as: *Let $X \subset A_0$ be a subvariety of an abelian variety A_0 defined over a number field. Then the Zariski closure of the set of all torsion points on X consists of finitely many translates of algebraic subgroups of A.* There are a number of generalizations and different proofs of this celebrated Theorem of Raynaud by M. Hindry, E. Hrushovski, McQuillan, ..., Pila-Zannier.

In this talk we will discuss how the above two statements are related and that the first is applied to the proof of the second through "o-minimal structure".

The present result might be a first instance of a *direct connection at the proof level* between the value distribution theory and the arithmetic (Diophantine) theory over number fields, while there have been many *analogies* between them.

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