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# SOME PROBLEMS CONCERNING ADMISSIBLE SEQUENCES IN THE THEORY OF ENTIRE AND MEROMORPHIC FUNCTIONS

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In the theory of entire and meromorphic functions the notion of $\lambda$-admissible sequence plays an essential rôle (see, for example [1–2]). Let $\mathcal{Z}=\{z_\nu\}$ $z_\nu\to\infty$, as $\nu\to\infty$be a sequence of nonzero complex numbers, $n(r,\mathcal{Z})=\sum_{|z_\nu|\le r}1$, $\mathcal{N}(r,\mathcal{Z})=\int_0^r\frac{n(t,\mathcal{Z})}{t}\,dt$ and $\lambda$ a positive nondecreasing on $\mathbb{R}_+$ function.

The sequence $\mathcal{Z}$ is called $\lambda$-admissible, if there exist constants $a>0$, $b>0$, such that for all $r>0$, $r_2>r_1>0$, $k\in\mathbb{N}$ the following inequalities hold $\mathcal{N}(r,\mathcal{Z})\le a\lambda(br)$, $\left|\sum_{r_1<|z_\nu|\le r_2}z_\nu^{-k}\right|\le\frac{a\lambda(br_1)}{r_1^k}+\frac{a\lambda(br_2)}{r_2^k}$.

The following problem is formulated together with A. Gol'dberg, B. Vynnytskyĭ.

**Problem 1.** *Describe the $\lambda$-admissible sequences with $\lambda(r)=\mathcal{N}(r,\mathcal{Z})$.*

Let $\mathcal{K}$ be the class of positive nondecreasing on $\mathbb{R}_+$ functions $\lambda$, $\lambda(+0)>0$ such that for every couple of function $\lambda,\widetilde{\lambda}$ from $\mathcal{K}$ either the ratio $\lambda(r)/\widetilde{\lambda}(r)$ or $\widetilde{\lambda}(r)/\lambda(r)$ is bounded.

We shall say that $\lambda$ is equivalent to $\widetilde{\lambda}$, if $\widetilde{\lambda}\le a\lambda(br)$ and $\lambda(r)\le\widetilde{a}\widetilde{\lambda}(\widetilde{b}r)$ for some positive $a,b,\widetilde{a},\widetilde{b}$ and every $r>0$.

The inequality $\widetilde{\lambda}(r)\le a\lambda(br)$ with some $a>0$, $b>0$ and arbitrary $r>0$ supplies the set $\{K\}$ of equivalence classes with order relation $(\le)$.

A sequence $\mathcal{Z}$ of nonzero complex numbers is called $K$-admissible, if one is $\lambda$-admissible with respect to some (and, as consequence, with respect to every) function $\lambda$ from $K$.

A class $K$ is called *minimal* for $\mathcal{Z}$ if $\mathcal{Z}$ is $K_2$-admissible with $K\le K_2$ and non-$K_1$-admissible with $K_1<K$.

**Problem 2.** *Is there a minimal class for every sequence of nonzero complex numbers?*

**Problem 3.** *Find (if exists) a minimal class generated by$\mathcal{K}$ which contains $\mathcal{N}(r,\mathcal{Z})+1$ for arbitrary sequence $\mathcal{Z}$.*

## REFERENCES

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