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Estimates of derivatives of meromorphic functions on sets of a-points. (English)

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J. Lond. Math. Soc., II. Ser. 34, 534-540 (1986).

In the paper, the following result is proved: Suppose that w is meromorphic in \mathbb{C} , that a_ν , $1 \leq \nu \leq q$, $q > 4$, are different complex constants, and that $\psi(r)$ is monotone decreasing on $[0, \infty)$ with $\psi(r) \rightarrow 0$ as $r \rightarrow \infty$. Then there is a set E of finite logarithmic measure in $[0, \infty)$ such that for every $r \notin E$ there is a subset $\{z_{\nu,k}\}$, $1 \leq k \leq n_0(r, a_\nu)$ of the a_ν -points of w which lie in $|z| \leq r$ and, moreover, satisfy

$$|w'(z_{\nu,k})| \geq \psi(r)A^{1/2}(r)/r, \quad 1 \leq \nu \leq q, \quad 1 \leq k \leq n_0(r, a_\nu),$$

$$\sum_{\nu=1}^q n_0(r, a_\nu) \geq (q-4)A(r) - o[A(r)], \quad r \rightarrow \infty, \quad r \notin E.$$

This result gives easy estimates of the order of meromorphic solutions of some classes of algebraic differential equations, which is elegantly demonstrated in the closing part of the paper.

Reviewer: [A.Klič](#)

MSC:

- [30D30](#) Meromorphic functions of one complex variable (general theory)
- [30D35](#) Value distribution of meromorphic functions of one complex variable, Nevanlinna theory
- [34A12](#) Initial value problems, existence, uniqueness, continuous dependence and continuation of solutions to ordinary differential equations

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Keywords:

a-point; Ahlfors spherical characteristic; meromorphic solution of differential equations

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