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ON THE GROWTH OF ALGEBROID FUNCTIONS OF $\mu_{*}<\infty$

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1. Introduction. Let $f_0, \cdots, f_N$ $(N\geqq 1)$ be entire functions with no common zeros and denote by $T(r, f)$ the characteristic function of the system $f=(f_0, \cdots, f_N)$. Further, if $f_j\not\equiv 0$ $(0\leqq j\leqq N)$, we define $m_2(r, f)$ as follows:

$$m_2(r. f)=\left(\frac{N}{4\pi}\int_0^{2\pi}\sum_{l,j=0}^{N}\left\{\log\left|\frac{f_l(re^{i\theta})}{f_j(re^{i\theta})}\right|\right\}^2 d\theta\right)^{1/2}. \tag{1}$$

By Drasin and Shea [2], Pólya peaks of order ρ exist iff $\rho\in[\mu_*, \lambda_*]$ and $\rho<\infty$, where

$$\begin{aligned}\mu_*=\mu_*(T)&=\inf\left\{\rho: \lim_{r,A\to\infty}\frac{T(Ar, f)}{A^\rho T(r, f)}=0\right\},\\ \lambda_*=\lambda_*(T)&=\sup\left\{\rho: \overline{\lim_{r,A\to\infty}}\frac{T(Ar, f)}{A^\rho T(r, f)}=\infty\right\}.\end{aligned} \tag{2}$$

In [5], [6], Miles and Shea have shown

THEOREM A. *Suppose that f is meromorphic (i.e., $N=1$, $f=f_1/f_0=(f_0, f_1)$) with $\mu_*<\infty$. Then*

$$k_2(f)=\overline{\lim_{r\to\infty}}\frac{N(r, 0, f)+N(r, \infty, f)}{m_2(r, f)}\geqq\sup_{\mu_*\leq\rho\leq\lambda_*}C_1(\rho), \tag{3}$$

where

$$C_1(\rho)=\frac{|\sin\pi\rho|}{\pi\rho}\left\{\frac{2}{1+(\sin 2\pi\rho)/(2\pi\rho)}\right\}^{1/2}. \tag{4}$$

In this note, we shall extend Theorem A to systems of $\mu_*<\infty$. Our extension is the following:

THEOREM. *Let $f=(f_0, \cdots, f_N)$ $(f_j\not\equiv 0)$ be a system with $\mu_*<\infty$. Then*

$$k_2(f)=\overline{\lim_{r\to\infty}}\frac{\sum_{j=0}^{N}N(r, 0, f_j)}{m_2(r, f)}\geqq\sup_{\mu_*\leq\rho\leq\lambda_*}C_N(\rho), \tag{5}$$

where

$$C_N(\rho)=\frac{1}{N}\frac{|\sin\pi\rho|}{\pi\rho}\left\{\frac{2}{1+(\sin 2\pi\rho)/(2\pi\rho)}\right\}^{1/2}. \tag{6}$$

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