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On Entire and Meromorphic Functions that Share Small Functions with their Derivatives

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Abstract:

In this paper, it is shown that if f is a non-constant entire function, f and $f^{(k)}$ share the small function $a (\neq 0, \infty)$ CM and $\delta(0, f) > \frac{3}{4}$, then $f \equiv f^{(k)}$. Furthermore, if f is non-constant meromorphic, f and a do not have any common pole and $4\delta(0, f) + 2(8 + k)\Theta(\infty, f) > 19 + 2k$, then the same conclusion can be obtained. Finally, some open questions are posed for the reader.



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