

Lin, Wei-Chuan; Yi, Hong-Xun

Uniqueness theorems for ‘meromorphic function’. (English) Zbl 1056.30031
Indian J. Pure Appl. Math. 35, No. 2, 121-132 (2004).

This paper is considering uniqueness results of meromorphic functions under suitable value sharing conditions for their differential polynomials. The main result, improving a result by *M. Fang* and *W. Hong*, see [Indian J. Pure Appl. Math. 32, 1343–1348 (2001; [Zbl 1005.30023](#))], reads as follows: Given two transcendental entire functions f and g and an integer $n \geq 7$, if $f^n(f-1)f'$ and $g^n(g-1)g'$ share the value one CM, then $f = g$.

The previous result had $n \geq 11$. Several related results will be proved as well, including the following meromorphic variant of the main result: Given two distinct nonconstant meromorphic functions f and g and an integer $n \geq 12$, then under the same shared value condition, there exists a nonconstant meromorphic function h so that

$$g = \frac{(n+2)(1-h^{n+1})}{(n+1)(1-h^{n+2})}, \quad f = hg.$$

The proofs rely on the Nevanlinna theory. Some details remained unclear for the reviewer, say e.g. the proof of Theorem 2, where clearly $T(r, f) = (n+2)T(r, h) + S(r, f)$ should have been written instead of $T(r, f) = (n+1)T(r, h) + S(r, f)$.

Reviewer: [Ilpo Laine \(Joensuu\)](#)

MSC:

30D35 Value distribution of meromorphic functions of one complex variable, Nevanlinna theory

Cited in **6** Reviews
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