

## UNICITY OF SHIFT POLYNOMIALS GENERATED BY MEROMORPHIC FUNCTIONS

M. TEJUSWINI AND N. SHILPA\*

*Abstract.* This paper aims to prove the uniqueness result for shift polynomials of a meromorphic function and its higher order derivative sharing polynomials under suitable conditions. The result obtained generalizes the existing literature and examples given prove the acuteness of the imposed conditions.

*Mathematics subject classification (2020):* 30D35.

*Keywords and phrases:* Meromorphic function, entire function, uniqueness, weighted sharing, shift polynomials.

### REFERENCES

- [1] A. BANERJEE AND B. CHAKRABORTY, *On The Uniqueness Of Power Of a Meromorphic Function Sharing a Set With Its  $k^h$  Derivative*, J. of the Indian Math. Soc., **85**, (2018), 1–15.
- [2] Y. M. CHIANG AND S. J. FENG, *On The Nevanlinna Characteristic  $f(z + \eta)$  And Difference Equations In Complex Plane*, Ramanujan J., **16**, (2008), 105–129.
- [3] W. K. HAYMAN, *Meromorphic Functions*, Clarendon Press, Oxford, 1964.
- [4] I. LAHIRI AND S. MAJUMDER, *On a conjecture of Lu, Li and Yang*, Preprint, **11**, (2018).
- [5] I. LAHIRI AND B. PAL, *Bruck Conjecture And a Linear Differential Polynomial*, Commun. Korean Math. Soc., **33**, 3 (2018), 799–808.
- [6] I. LAHIRI AND P. SAHOO, *On a Uniqueness Theorem Of H. ueda*, J. Korean Math. Soc., **47**, 3 (2010), 467–482.
- [7] I. LAINE, *Nevanlinna Theory And Complex Differential Equations*, Walter de Gruyter, Berlin, 1993.
- [8] I. LAINE AND C. C. YANG, *Clunie Theorems For Difference And  $q$ -Difference Polynomials*, J. London Math. Soc., **76**, (2007), 556–566.
- [9] F. LU AND H. X. YI, *The Bruck Conjecture And Entire Functions Sharing Polynomials With their  $k^h$  Derivatives*, J. Korean Math. Soc., **48**, 3 (2011), 499–512.
- [10] W. LU, Q. LI AND C. C. YANG, *On The Transcendental Entire Solutions Of a Class Of Differential Equations*, Bull. Korean Math. Soc., **51**, 5 (2014), 1281–1289.
- [11] S. MAJUMDER, *A Result On A Conjecture of W. Lu, Q. Li and C. Yang*, Bull. Korean Math. Soc., **53**, 2 (2016), 411–421.
- [12] S. MAJUMDER AND S. SAHA, *A Result on A Question of Lu, Li and Yang*, Filomat, **33**, 9 (2019), 2893–2906.
- [13] S. MAJUMDER AND S. SAHA, *Power Of Meromorphic Function Sharing Polynomials With Derivative Of Its Combination With Its Shift*, Math. Slovaca, **69**, 5 (2019), 1037–1052.
- [14] P. SAHOO AND G. BISWAS, *Uniqueness of Entire Functions Sharing Polynomials with Their Derivatives*, Kyungpook Math. J., **58**, (2018), 519–531.
- [15] N. SHILPA AND L. N. ACHALA, *Uniqueness Of Meromorphic Functions Of a Certain Non Linear Differential Polynomials*, Int. Elec. J. of Pure and Appl. Math., **10**, 7 (2016), 23–39.
- [16] M. TEJUSWINI AND N. SHILPA,  *$Q$ -Shift Differential Polynomial of Meromorphic Functions Sharing  $I$  Value*, J. Anal. **29** (2021), 47–65.
- [17] J. F. XU AND H. X. YI, *A Precise Inequality Of Differential Polynomials Related To Small Functions*, J. Math. Ineq., **10**, 4 (2016), 971–976.

- [18] C. C. YANG AND H. X. YI, *Uniqueness Theory Of Meromorphic Functions*, Kluwer Academic publishers, 2003.
- [19] Q. C. ZHANG, *Meromorphic Functions Sharing Three Values*, Indian J. Pure Appl. Math., **30**, (1999), 667–682.
- [20] J. L. ZHANG, *Meromorphic Functions Sharing a small function with their derivatives*, Kyungpook Math. J., **49**, (2009), 143–154.
- [21] J. L. ZHANG AND L. Z. YANG, *A Power Of a Meromorphic Function Sharing a Small Function With Its Derivative*, Ann. Aca. Sci. Fenn. Math., **34**, (2009), 249–260.
- [22] J. L. ZHANG AND L. Z. YANG, *A Power Of An Entire Function Sharing One Value With Its Derivative*, Comput. Math. Appl., **60**, (2010), 2153–2160.