

ON SOME INEQUALITIES CONCERNING GENERALIZED (α, β) RELATIVE ORDER AND GENERALIZED (α, β) RELATIVE TYPE OF ENTIRE FUNCTION WITH RESPECT TO AN ENTIRE FUNCTION

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Abstract. In this paper, we intend to find out some inequalities relating to generalized (α, β) relative order, generalized (α, β) relative type and generalized (α, β) relative weak type of an entire function f with respect to an entire function g when generalized (γ, β) relative order, generalized (γ, β) relative type and generalized (γ, β) relative weak type of f with respect to another entire function h and generalized (γ, α) relative order, generalized (γ, α) relative type and generalized (γ, α) relative weak type of g with respect to h are given, where α, β and γ are continuous non-negative slowly increasing functions defined on $(-\infty, +\infty)$.

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REFERENCES

- [1] L. BERNAL-GONZALÉZ, *Crecimiento relativo de funciones enteras. Aportaciones al estudio de las funciones enteras con índice exponencial finito*, Doctoral Thesis, 1984, Universidad de Sevilla, Spain.
- [2] L. BERNAL, *Orden relative de crecimiento de funciones enteras*, Collect. Math., **39** (1988), 209–229.
- [3] T. BISWAS AND C. BISWAS, *On some growth properties of composite entire and meromorphic functions from the view point of their generalized type (α, β) and generalized weak type (α, β)* , South East Asian J. Math. Math. Sci., **17** (1) (2021), 31–44.
- [4] T. BISWAS, C. BISWAS AND B. SAHA, *Sum and product theorems relating to generalized relative order (α, β) and generalized relative type (α, β) of entire functions*, J. Korean Soc. Math. Educ. Ser. B: Pure Appl. Math., **28** (2) (2021), 155–185.
- [5] T. BISWAS, C. BISWAS AND R. BISWAS, *A note on generalized growth analysis of composite entire functions*, Poincare J. Anal. Appl., **7** (2) (2020), 257–266.
- [6] T. BISWAS, *On some inequalities concerning relative (p, q) - φ type and relative (p, q) - φ weak type of entire or meromorphic functions with respect to an entire function*, J. Class. Anal., **13**(2) (2018), 107–122.
- [7] I. CHYZHYKOV AND N. SEMOCHKO, *Fast growing entire solutions of linear differential equations*, Math. Bull. Shevchenko Sci. Soc., **13** (2016), 1–16.
- [8] M. N. SHEREMETA, *Connection between the growth of the maximum of the modulus of an entire function and the moduli of the coefficients of its power series expansion*, Izv. Vyssh. Uchebn. Zaved Mat., **2** (1967), 100–108, (in Russian).
- [9] G. VALIRON, *Lectures on the General Theory of Integral Functions*, Chelsea Publishing Company, New York, USA, 1949.
- [10] L. YANG, *Value distribution theory*, Springer-Verlag, Berlin, 1993.