

Latreuch, Zinelaâbidine; Belaïdi, Benharrat; El Farissi, Abdallah

Complex oscillation of differential polynomials in the unit disc. (English) Zbl 1299.34284
Period. Math. Hung. 66, No. 1, 45-60 (2013).

Summary: We consider the complex differential equations

$$f'' + A_1(z)f' + A_0(z)f = F,$$

where $A_0 \not\equiv 0$, A_1 and F are analytic functions in the unit disc $\Delta = \{z : |z| < 1\}$. We obtain results on the order and the exponent of convergence of zero-points in Δ of the differential polynomials $g_f = d_2 f'' + d_1 f' + d_0 f$ with non-simultaneously vanishing analytic coefficients d_2, d_1, d_0 . We answer a question posed by *J. Tu* and *C. F. Yi* [J. Math. Anal. Appl. 340, No. 1, 487-497 (2008; Zbl 1141.34054)] for the case of second-order linear differential equations in the unit disc.

MSC:

- 34M10** Oscillation, growth of solutions to ordinary differential equations in the complex domain
- 30D35** Value distribution of meromorphic functions of one complex variable, Nevanlinna theory
- 34M03** Linear ordinary differential equations and systems in the complex domain

Cited in **2** Documents

Keywords:

linear differential equations; analytic function; hyper-order; exponent of convergence of the sequence of distinct zeros

Full Text: [DOI](#)

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