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Summary: Linear differential equations
\[ f^{(k)} + [P_{k-1}(e^z) + Q_{k-1}(e^{-z})]f^{(k-1)} + \cdots + [P_0(e^z) + Q_0(e^{-z})]f = 0 \]
and
\[ f^{(k)} + [P_{k-1}(e^z) + Q_{k-1}(e^{-z})]f^{(k-1)} + \cdots + [P_0(e^z) + Q_0(e^{-z})]f = R_1(e^z) + R_2(e^{-z}) \]
where \( P_j(z), Q_j(z), j = 0, 1, 2, \ldots, k-1 \) and \( R_i(z), i = 1, 2, \) are polynomials in \( z \), are investigated. The relationship between solutions and their 1st derivatives and small functions are studied.

MSC:
30D35 Value distribution of meromorphic functions of one complex variable, Nevanlinna theory
30D30 Meromorphic functions of one complex variable (general theory)
34M10 Oscillation, growth of solutions to ordinary differential equations in the complex domain
34M05 Entire and meromorphic solutions to ordinary differential equations in the complex domain

Keywords:
differential equation; entire functions; small functions; exponent of convergence

Full Text: DOI