Value distribution and growth of solutions of certain nonlinear ODEs Ewa Ciechanowicz Faculty of Mathematics and Physics, University of Szczecin, Poland ewa.ciechanowicz@usz.edu.pl

Let R(z, f) be rational in f with meromorphic coefficients. By an extension of the Malmquist-Yosida theorem, if the equation $(f')^n = R(z, f)$ takes up an admissible meromorphic solution, then R(z, f) is a polynomial in f, which means that the equation is the hyper-Riccati equation. As a result of classification of the second order ordinary differential equations without movable branch points, f'' = F(z, f, f'), where F is rational in f, algebraic in f'and analytic in z, so-called Painlevé equations have been obtained. Among them, six irreducible equations are the best known. They led to recognition of new functions, called the Painlevé transcendents. The Painlevé equations possess a number of remarkable properties, the Hamiltonian structure in particular. By this structure they are related both with one another and with a number of associated equations, called Painlevé sigma-equations. Meromorphic solutions of Riccati, hyper-Riccati and Painlevé equations can be studied from the perspective of value distribution and growth theory, with such values as defect, deviation or multiplicity index estimated.