ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

9. Ordinary Differential Equations and Dynamical Systems

1991 MS Classification: 34, 45
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Linear conjugate boundary value problems for the second order linear ordinary differential equation with super—singular coefficients

Let $\Gamma_0 = \{a < x < b\}$ is set of the points on the real axis, contains the points $x = b_1, \ldots, x = b_n$. Futher denote $\Gamma_b = \{b_1, b_2, \ldots, b_n\}$. In $\Gamma = \Gamma_0 \backslash \Gamma_b$ we shall consider the following equation

$$\omega^2(x)y'' + a_1(x)\omega(x)y' + a_2(x)y = f(x),$$

where $\omega(x) = \prod_{j=1}^{n} |x - b_j|^\alpha, \alpha = const > 0$. On the bases obtained integral representation in dependent from position singular points in Γ_0, power singularity, the roots of characteristic equation in singular points, posing and investigation of the linear conjugate boundary value problems with the set conditions in the singular points.

Reference: N. Rajabov, An Introduction to The Theory of Partial Differential Equations with super–singular coefficients, Dushanbe, 1996, 230 p.