

**Lukashevich, N. A.; Chichurin, A. V.**

**To the theory of geodesic lines equation.** (Russian) Zbl 1058.53507  
Nelinejni Kolyvannya 2, No. 1, 30-35 (1999).

The authors determine a class of geodesic lines equations whose general integral is

$$\phi_3(x) = C_1\phi_1(x) \exp \lambda_1 y(x) + C_2\phi_2(x) \exp \lambda_2 y(x),$$

where  $C_i$ ,  $i = 1, 2$ , are arbitrary constants,  $\phi_i$ ,  $i = 1, 2, 3$ , are analytic functions ( $\neq$ ) and  $\lambda_1$  and  $\lambda_2$  are fixed constants. Also the Abel equation is considered. For this equation the conditions are established which ensure the integration in quadratures and the form of the general integral is shown.

Reviewer: [A. Ju. Obolenskij \(Kyïv\)](#)

**MSC:**

[53C22](#) Geodesics in global differential geometry  
[34A30](#) Linear ordinary differential equations and systems, general

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[geodesic lines equation](#); [general integral](#)