ARICHE NIERESS

S0022-247X(05)00037-5/FLA AID:9935 Vol. ••• (•••)maa9935
YJMAA:m1 v 1.32 Prn:28/01/2005; 14:13

[DTD5] P.1 (1-24) by:CG p. 1



Available online at www.sciencedirect.com

J. Math. Anal. Appl. ••• (••••) •••-••

Journal of
MATHEMATICAL
ANALYSIS AND
APPLICATIONS

ß

www.elsevier.com/locate/imaa

Linearization of third-order ordinary differential equations by point and contact transformations

Nail H. Ibragimov a,*, Sergey V. Meleshko b

- ^a Department of Mathematics and Science, Research Centre ALGA: Advances in Lie Group Analysis, Blekinge Institute of Technology, SE-371 79 Karlskrona, Sweden
- ^b School of Mathematics, Suranaree University of Technology, Nakhon Ratchasima, 3000, Thailand

Received 7 January 2005

Submitted by William F. Ames

Abstract

We present here the solution of the problem on linearization of third-order ordinary differential equations by means of point and contact transformations. We provide, in explicit forms, the necessary and sufficient conditions for linearization, the equations for determining the linearizing point and contact transformations as well as the coefficients of the resulting linear equations.

© 2005 Published by Elsevier Inc.

Keywords: Nonlinear equations; Candidates for linearization; Contact transformations; Relative invariants; Linearization test

0022-247X/\$ - see front matter © 2005 Published by Elsevier Inc. doi:10.1016/j.jmaa.2005.01.025

^{*} Corresponding author.

E-mail address: nib@bthse (N.H. Ibragimov).