

Corrections to the corrected printing and paperback edition of
Olver, P.J., *Applications of Lie Groups to Differential Equations*,
Second Edition, Springer–Verlag, New York, 1993.

Last updated: October 2, 2009

*** On page 10, line 6, change

$$\phi \circ \tilde{\phi}^{-1}: \mathbb{R} \rightarrow \mathbb{R}$$

to

$$\phi^{-1} \circ \tilde{\phi}: \mathbb{R} \rightarrow \mathbb{R}$$

*** On page 19, line 17, change

$$x \in V_0 = \{ x : |x| < \frac{1}{2} \}$$

to

$$x \in V_0 = \{ -1 < x < \frac{1}{3} \}$$

*** On page 67, line 15, change

sort

to

short

*** On page 83, line 14, change

following

to

following

*** On page 93, line 8, change

functon

to

function

*** On page 123, line 5, change

$$\tau \frac{\partial}{\partial \tau}$$

to

$$\tau \frac{\partial}{\partial t}$$

*** On page 207, line -2, change

Example 2.64

to

Example 2.44

*** On page 280, in the table, change

$$I_x = xD - yA + \frac{1}{2}xuu_t + tM_x$$

to

$$I_x = xD + yA + \frac{1}{2}xuu_t + tM_x$$

*** Thanks to Gehrt Hartjen for checking through this table and the table on page 340 in his Mathematics Diplomarbeit in Aachen, 2001.

*** On page 290, line -4, change

Exercise 2.33

to

Exercise 2.35

*** On page 340, in line 4 of the table, change

$$-yu_{xxx} + xu_{xyy} + u_{xy}$$

to

$$-yu_{xxx} + xu_{xxy} + u_{xy}$$

*** On page 340, in line 5 of the table, change

$$u_{xx}(yu_{yt} + \frac{1}{2}u_t) - u_{yy}(xu_{xt} + \frac{1}{2}u_t)$$

to

$$-u_{xx}(yu_{yt} + \frac{1}{2}u_t) + u_{yy}(xu_{xt} + \frac{1}{2}u_t)$$

*** On page 350, lines -8 to -7, change

the their Fréchet

to

their Fréchet

*** On page 366, line -7, change

$$J \setminus I$$

to

$$I \setminus J$$

Thanks to Rob Thompson for catching this and several other errors.

*** On page 381, Exercise 3.16a:

The system does not, in fact have a recursion operator, although there is a recursive formula for generating the higher order symmetries. On the other hand, the related system

$$u_t = u_{xx} + v^2, \quad v_t = v_{xx},$$

does admit a recursion operator. Details can be found in: Beukers, F., Sanders, J.A., and Wang, J.P., On integrability of systems of evolution equations, *J. Diff. Eq.* **172** (2001), 396-408.

*** On page 381, Exercise 3.16b:

A proof that the Bakirov system has only one generalized symmetry can now be found in: Beukers, F., Sanders, J.A., and Wang, J.P., One symmetry does not imply integrability, *J. Diff. Eq.* **146** (1998), 251–260.