# **EMS Tracts in Mathematics 2**

### **EMS Tracts in Mathematics**

**Editorial Board:** 

Carlos E. Kenig (The University of Chicago, USA)

Andrew Ranicki (The University of Edinburgh, Great Britain)

Michael Röckner (Universität Bielefeld, Germany, and Purdue University, USA)

Vladimir Turaev (Institut de Recherche Mathématique Avancée, Université Louis Pasteur et CNRS, Strasbourg, France)

Alexander Varchenko (The University of North Carolina at Chapel Hill, USA)

This series includes advanced texts and monographs covering all fields in pure and applied mathematics. *Tracts* will give a reliable introduction and reference to special fields of current research. The books in the series will in most cases be authored monographs, although edited volumes may be published if appropriate. They are addressed to graduate students seeking access to research topics as well as to the experts in the field working at the frontier of research.

1 Panagiota Daskalopoulos and Carlos E. Kenig, Degenerate Diffusions

Karl H. Hofmann Sidney A. Morris

# The Lie Theory of Connected Pro-Lie Groups

A Structure Theory for Pro-Lie Algebras, Pro-Lie Groups, and Connected Locally Compact Groups



### Authors:

Karl Heinrich Hofmann Fachbereich Mathematik, AG 5 Technische Universität Darmstadt Schloßgartenstraße 7 64289 Darmstadt

Germany

,

E-Mail: hofmann@mathematik.tu-darmstadt.de

Sidney A. Morris

School of Information Technology and

Mathematical Sciences University of Ballarat P.O. Box 663

Ballarat, Victoria 3353

Australia

E-mail: S.Morris@ballarat.edu.au

2000 Mathematics Subject Classification: Primary 22-02; secondary 17B65, 22D05, 22E20, 22E65, 44A13, 44M40, 58B25.

Key words: pro-Lie groups, pro-Lie algebras, Lie theory of connected pro-Lie groups, exponential function, structure theory of locally compact groups, completeness, quotient groups, open mapping theorem, Levi–Malcev splitting, local lwasawa splitting.

# ISBN 978-3-03719-032-6

The Swiss National Library lists this publication in The Swiss Book, the Swiss national bibliography, and the detailed bibliographic data are available on the Internet at http://www.helveticat.ch.

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in other ways, and storage in data banks. For any kind of use permission of the copyright owner must be obtained.

# © 2007 European Mathematical Society

### Contact address:

European Mathematical Society Publishing House Seminar for Applied Mathematics ETH-Zentrum FLI C4 CH-8092 Zürich Switzerland

Phone: +41 (0)44 632 34 36 Email: info@ems-ph.org Homepage: www.ems-ph.org

Typeset using the authors' T<sub>E</sub>X files: I. Zimmermann, Freiburg Printed in Germany

987654321